$1.00 Per Copy

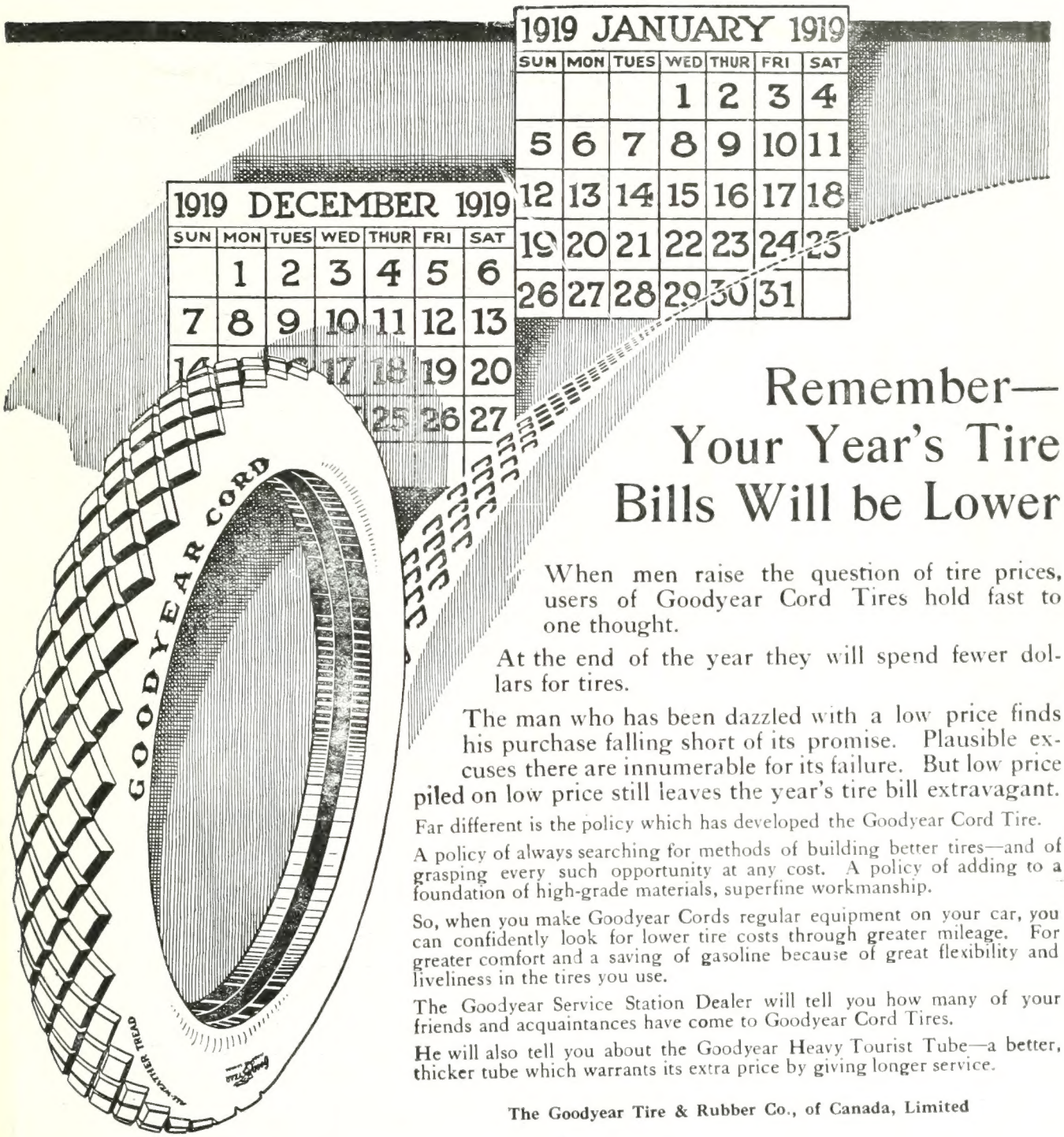
$3.00 Per Year

The Canadian Medical Quarterly

PUBLISHED UNDER THE DIRECTION OF
THE FOLLOWING BOARD OF EDITORS

SEPTEMBER 1919

THE MACMILLAN COMPANY OF CANADA, LTD.
ST. MARTIN'S HOUSE, 70 BOND ST., TORONTO



Remember— Your Year's Tire Bills Will be Lower

When men raise the question of tire prices, users of Goodyear Cord Tires hold fast to one thought.

At the end of the year they will spend fewer dollars for tires.

The man who has been dazzled with a low price finds his purchase falling short of its promise. Plausible excuses there are innumerable for its failure. But low price piled on low price still leaves the year's tire bill extravagant.

Far different is the policy which has developed the Goodyear Cord Tire.

A policy of always searching for methods of building better tires—and of grasping every such opportunity at any cost. A policy of adding to a foundation of high-grade materials, superfine workmanship.

So, when you make Goodyear Cords regular equipment on your car, you can confidently look for lower tire costs through greater mileage. For greater comfort and a saving of gasoline because of great flexibility and liveliness in the tires you use.

The Goodyear Service Station Dealer will tell you how many of your friends and acquaintances have come to Goodyear Cord Tires.

He will also tell you about the Goodyear Heavy Tourist Tube—a better, thicker tube which warrants its extra price by giving longer service.

The Goodyear Tire & Rubber Co., of Canada, Limited

GOODYEAR

MADE IN CANADA

CORD TIRES

THE CANADIAN MEDICAL QUARTERLY

VOL. II SEPTEMBER, 1919 NO. 1

CONTENTS

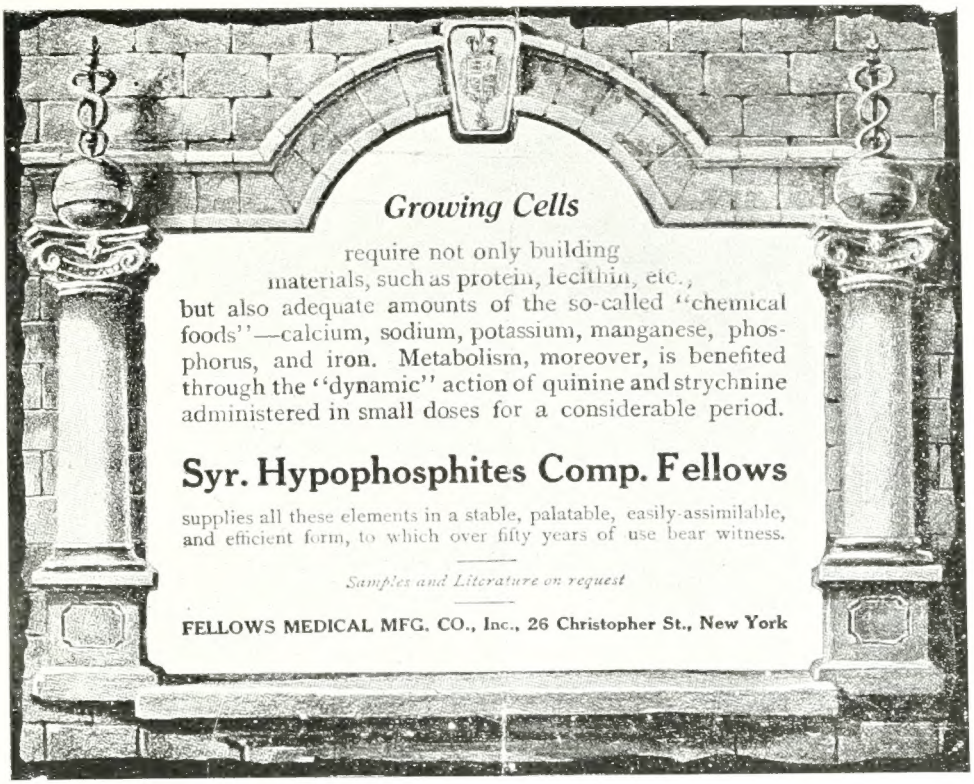
$1.00 PER COPY $3.00 PER YEAR

Published at St. Martin's House, 70 Bond Street, Toronto, Canada

By

THE MACMILLANS IN CANADA

Unless otherwise directed all subscriptions commence with the current issue. It is impossible to furnish back numbers.



Duncan, Flockhart & Co's

Edinburgh and London

CAPSULES

Put Up in Boxes of One Hundred Capsules each

No. 107

Blaud (Duncan)	1 Pill
Liq. Arsenicalis	2 Minims
Strychnine	$\frac{1}{50}$ Grain

No. 108

Blaud (Duncan)	2 Pills
Liq. Arsenicalis	2 Minims
Strychnine	Grain

No. 109

Blaud (Duncan)	2 Minims
Liq. Arsenicalis	3 Pills
Strychnine	$\frac{1}{50}$ Grain

These combinations are of the Highest Value as a General Tonic, especially for the treatment of convalescents after fever.

They may be ordered through Retail Druggists.
Full list on application.

R. L. GIBSON, 88 Wellington St. West, TORONTO

Antiseptic
Astringent
Deodorant
Detergent

McCrimmon's Fluid

(Liq Zinci. Co.)

CHEMICALLY PURE. MADE IN CANADA

Most useful in cases of Infection, discharging Sinuses, indolent Ulcers, ulceration in Malignant Diseases and Stomatitis.

Sold through the medical profession only.

A sample bottle sent free to any physician upon request.

McCrimmon's Chemicals Limited

29 EAST RICHMOND STREET, TORONTO.

Protein Milk Powder

(C. M. P.)

A FOOD for correcting intestinal disorders in infants and children. For infants, it is found very useful in fermentative diarrhœa, infectious diarrhœa, and the preliminary corrective stage of marasmus. It is helpful also as an adjunct to breast-feeding in dyspepsia. For older children, it is most beneficial in chronic intestinal indigestion. For adults, it may be used where buttermilk is indicated.

Protein Milk Powder is the result of exhaustive work done at the Sick Children's Hospital, Toronto. As feeding tests covering many months have shown, Protein Milk Powder (C.M.P.) can be used in place of the liquid protein milk, which is so difficult to prepare by laboratory methods.

It is sold by us direct only to hospitals and physicians, or direct to mothers with the understanding that a physician is to be consulted as to its use. Labels on the tins bear no directions which enable a mother to use it without the advice of a doctor.

Protein Milk Powder (C.M.P.) is never sold by druggists, but is obtainable only direct from our offices.

Pamphlets and directions gladly sent to any interested physician. Write to our nearest office.

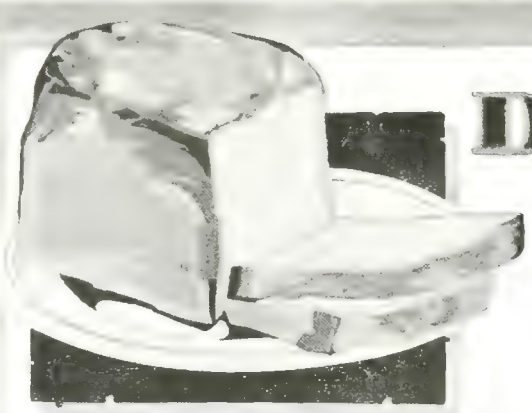
Canadian Milk Products Limited

10-12 St. Patrick Street, Toronto, Ont.

132 James Ave. E.
WINNIPEG, MAN.

10 Ste. Sophie Lane
MONTREAL, P.Q.

81 Prince William St.
ST. JOHN, N.B.



DIABETIC BREAD

100% Starch Free

And Palatable

Easily made in any home from

LISTERS PREPARED CASEIN DIABETIC FLOUR

Self-rising

30 boxes, enough for one month, sent direct $4.85; or 15 boxes $2.75.

One box of Listers Flour makes one loaf of diabetic bread containing 57 grams protein and 18.6 grams fat, making 400 calories. Dividing this loaf into five slices gives each slice the food value of about one egg. The caloric value of this loaf is approximately equal to one pound of rice, one-half pound of whole wheat bread or one-half pound of broiled tenderloin steak.

LISTER BROS., INC.

110 WEST 40TH STREET - - NEW YORK CITY

W. LLOYD WOOD, Canadian Agent,
64 & 66 Gerrard St. East, Toronto

YOUR PATIENT'S WELFARE YOUR OWN REPUTATION

demand that you inform yourself regarding reliable advances in practical therapeutic means and methods. For example:—

ARSENOVEN S. S.

DIMETHYLARSENIN (GR .31) MERCURY BINIODIDE (GR 1 10) SODIUM IODIDE (GR. ½)

ARSFEROVEN S.S.

SODIUM DIMETHYLARSENIN (GRAMME 0.13) IRON CACODYLATE GRAMME 0.065)

NAIOVEN S.S.

SODIUM IODIDE (2 GRAMMES)

SAL-IOVEN S. S.

SODIUM SALICYLATE (GRAMME 0.5-1) SODIUM IODIDE (GRAMME 0.5-1)

FOR INTRAVENOUS ADMINISTRATION ONLY

represent the last word in therapeutic advancement and assure the obtaining of results hitherto impossible.

Literature, case reports, price lists on request.

The S. S. PRODUCTS CO. PHILADELPHIA, Pa.

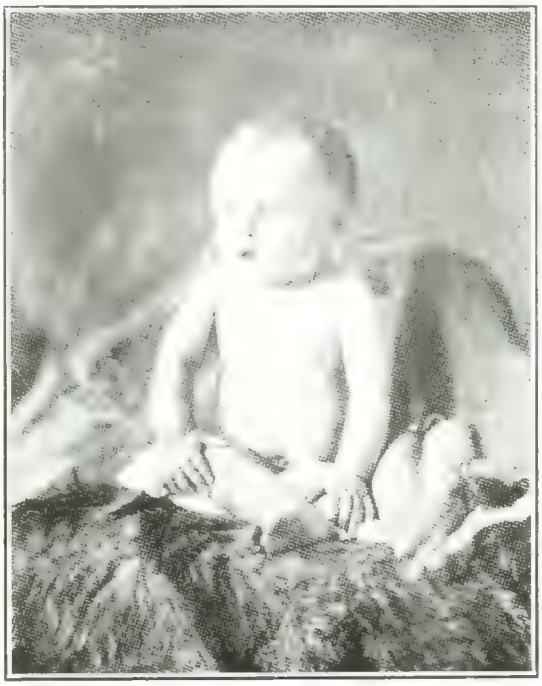
VIROL

A Preparation of Bone Marrow, Red Bone Marrow, Malt Extract, Lemon Syrup, etc.

CASE No. II

The nutrient value of Virol illustrated in a series of cases—particulars of which have been supplied by Medical Men

Age 7 weeks. Weight 2 lbs. 13 ozs.
Before Virol.



Age 49 weeks. Weight 17 lbs.
After Virol.

From the Medical Report:

Every food having failed and milk itself not being able to be digested, the child was fed on Virol and afterwards on milk (1 part), lime water (2 parts) and Virol. Virol was also given on the dummy the whole time as the child would not be quiet without it. The child consuming as much as 2½ ounces of Virol a day. This treatment was maintained until at 49 weeks he weighs 17 lbs.; has cut all his front teeth, and is in perfect health.

A Valuable Food in all Wasting Conditions

VIROL Limited

LONDON, England

27 St. Peter Street, Montreal

Now *Staple* Articles of Trade

THE parts of a Ford car—*every* part—can be bought *anywhere* in Canada.

They need not be "ordered from the factory."

—nor from a Ford Branch.

—nor even from one of the 750 Ford dealers.

They can be delivered "on the spot" by over 2000 garage and repair men.

Although highly specialized pieces of engineering and machining, Ford parts have become *staple articles of merchandise*. They are as easy to obtain as a hatchet or a saw.

This is a most unusual service to the owner of a car.

Its value is incalculable.

The Ford car need never be "tied up" while repair parts are being "brought on from the factory."

There need be no annoying delays while touring because Ford Service Stations are located everywhere.

The owner of a Ford sharing serious breakdown through accident may enjoy uninterrupted use of his car.

Caution to Ford Owners

Never allow "spurious" or imitation parts to be used in repairing your Ford. Your repair man—if he is earnest in his desire to serve you well—can get genuine Ford parts and sell them to you at a reasonable profit.

You need never accept "spurious" repair parts. In any locality, in any emergency, there is sure to be close at hand, a Ford Service Station.

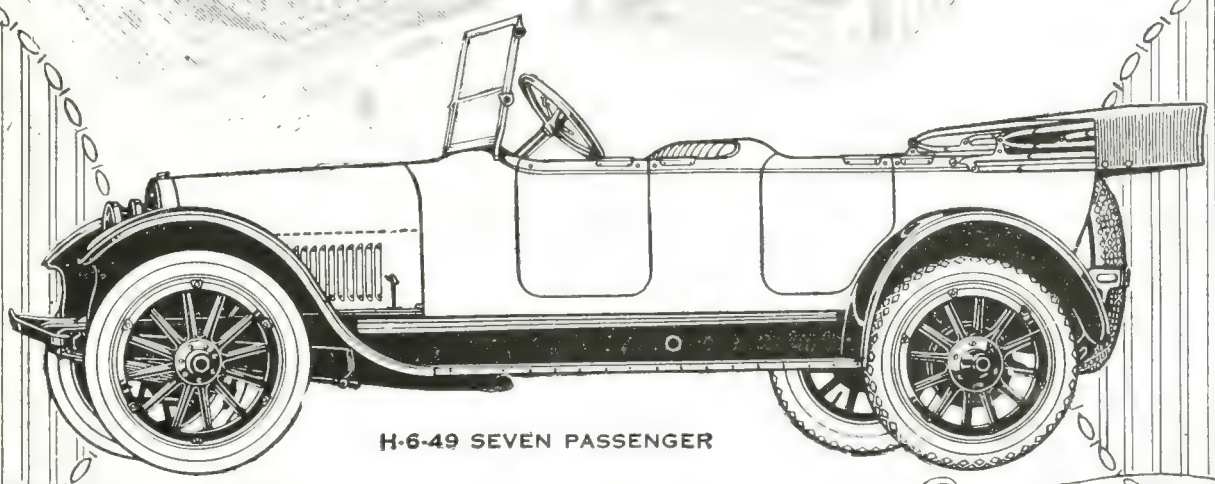
Demand genuine Ford parts. Be firm.

Keep your Ford running at full Ford efficiency

FORD MOTOR COMPANY OF CANADA, LIMITED, FORD, ONT.

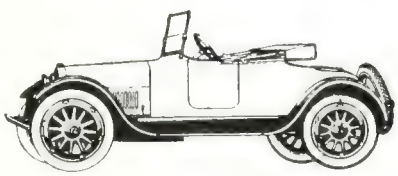
DEMAND
Genuine Ford Parts

McLAUGHLIN
Master Sixes



H-6-49 SEVEN PASSENGER

H-6-45 SPECIAL



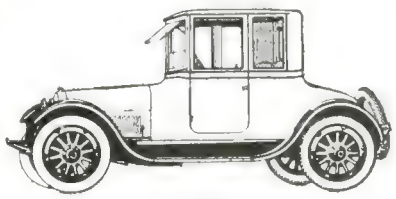
H-6-44 SPECIAL

Master engineers combined their efforts with master artists to produce the McLaughlin Master Six. The result is a car worthy of the highest manufacturing ideals—a car appropriately called the Master Six.

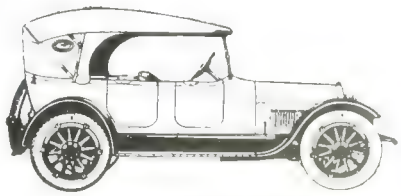
CANADA'S STANDARD CAR

The McLAUGHLIN MOTOR CAR CO., *Limited*

OSHAWA, ONTARIO



H-6-46



H-6-45 EXTRA SPECIAL

Announcement

To The Medical Profession

WE wish to announce that "Ovaltine" is now obtainable in Canada. You have no doubt heard of "Ovaltine" before, as its widespread reputation and general use throughout Great Britain and Europe has made it well known to many Canadian doctors.

"Ovaltine" is a British Product.

During the war "Ovaltine" was extensively used in a large number of the Allied Red Cross and Base Hospitals. The British Prisoners of War Association officially recognized its value, insomuch that all food parcels sent by them to the *Invalid* Prisoners of War contained a tin of "Ovaltine."

OVALTINE

Made of malt extract, milk and eggs and flavoured with cocoa, it contains *all* the essential food elements in the correct nutritive ratio. By a special process the *diastase* of the malt and the *vitamine* constituents of the several components are preserved.

Made of

MALT
MILK
EGGS
COCOA

and Nothing Else

ANALYSIS OF OVALTINE

Protein	11·2
FAT	8·01
Soluble Carbohydrates	67·9
Insoluble Carbohydrates	None
Organic Phosphorus (P.2.O.5)	1·18

For patients after or during influenza, for all cases of malnutrition, after fever or operation, or where the digestive functions are unequal to the nutritive demands "OVALTINE" will solve your dietary problems.

A delicious, easily assimilated food-drink that powerfully reinforces the diet without throwing a strain upon the digestive organs.

"Ovaltine" pleases the physician by the splendid results it gives; the nurse, by the ease of preparation; the patient, by the delightful flavour of the blended malt and cocoa.

Test "Ovaltine" at our expense. Send us your name and we will mail you a supply.

A. WANDER, LIMITED

27 FRONT ST. EAST **TORONTO (Canada)**

HEAD OFFICE :

45 COWCROSS ST., LONDON, ENGLAND

Works: Kings Langley, Hertfordshire, England

Modern Hospitals Have Universally Adopted

McCRIMMON'S

disinfectant and deodorant

CHEMICALLY PURE

MADE IN CANADA

McCRIMMON'S disinfectant is a powerful germicide that does away with all obnoxious odors in a few moments. This is of special benefit in the sick-room where the speedy recovery of patients is of paramount importance. McCRIMMON'S suppresses all odors no matter how powerful and leaves the sick-room fresh and sweet, thereby enabling the patient to get the maximum of rest under the most sanitary conditions.

Sample bottle sent to any physician upon request.

McCRIMMON'S CHEMICALS LIMITED

29 East Richmond St., Toronto

The Storm Binder and Abdominal Supporter

(Patented)

Dear Doctor:

Please fill this blank. Take out the page and mail it to us. The order will be filled with utmost care.
K. L. Storm, M.D.

Katherine L. Storm, M.D., 1540 Diamond St., Phila., Pa.

Do not write in this space

Order Blank with Directions for Measuring

Name of Patient

Address

Ship to

Address

Physician Ordering .....

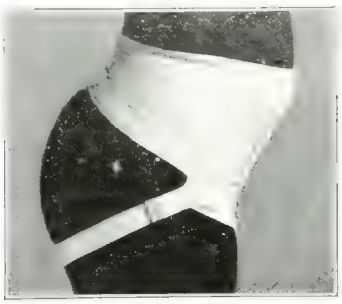
If this is a duplicate, please state Order No. given on your last bill ....

Material..... Price..... Enclosed is $..... Date

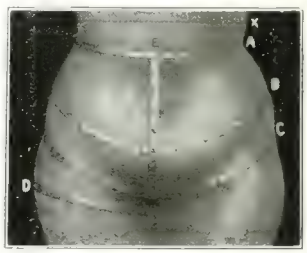
THE STORM BINDER AND ABDOMINAL SUPPORTER

TAKE SNUG MEASUREMENTS OVER SKIN

Circumference at A B C D top to bottom E



An extra circumference at X .....2 inches above the waist is required in supporters for gall stone, liver and stomach operations and for Special High Kidney Belts. (Note extra charge. State whether for man, woman, child or infant and for what purpose belt is worn. State date of advance for pregnancy belts. Locate incision, tumor or hernia by the exact measurement from median line and also locate it on cut. The more information given, the better the results.



Double Thread Cotton $6.00
Half Silk 9.00
Linen Mesh.....11.00
All Silk 13.00

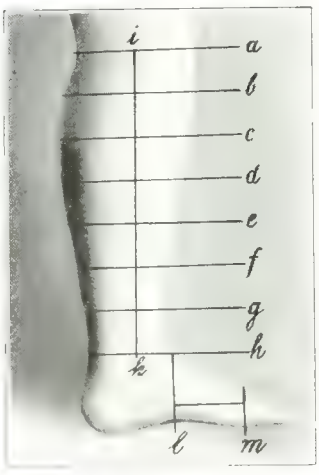
Circumference above 44 inches calls for extra charge (see page 28 of our Folder). All detail information gladly given. Illustrated folder and samples on request.

From the materials of which our belts are made, we also make a laced legging from garter to ankle, also a stocking similar to the legging, except that it has the half-foot additional. These Leg Supporters are firm and durable, giving an even, smooth, compression, strong to wear, cool and absorbent, with none of the discomforts attending rubber elastic.

Price of one Legging, cotton, $2.00; Linen Mesh, $4.00.

Price of one Stocking with half foot, cotton, $2.50; Linen Mesh, $5.00.

For extension upon the thigh write for estimates.



THE STORM LEG SUPPORTER

(See Folder, Page 27)

(Take snug measurements)

Always give length I to K (K is below ankle) and circumference measurements at intervals of about 2 inches.

If order is for Stocking, give length also L to M and circumferences at L and M.

Note—H circumference is below the ankle.

I to K
A
B
C
D
E
F
G
H
L to M
L
M

TERMS—Prepaid with Order, or C.O.D. and Charges

Every Storm Supporter Is Made to Order—Mail Orders Filled at Philadelphia only

KATHERINE L. STORM, M.D., 1540 Diamond St., PHILADELPHIA

PICTURE to yourself ten thousand illustrations, each teeming with vigorous action. Even then you will obtain but a vague idea of what comprises The London "Times'" History and Encyclopaedia of the War.

The completeness and scope of this History is so far beyond all others that they become insignificant miniatures in comparison.

Every brave deed on the battlefield, or in the air, or on sea has been truthfully depicted by official eye-witnesses. The world-wide reputation of "The Times" has been upheld by their correspondents and editors, working in co-operation with British and Allied Government officials.

The London "Times" has accomplished what almost seems an impossibility—but the result speaks for itself. In looking through this greatest-of-all histories, one can almost live over again the entire events that took place during the last five years. Nothing of any importance is omitted, and you obtain a knowledge of world events that cannot be learned in any other way.

All the descriptions given in "The Times'" History of the War are copyrighted, and cannot be used by anyone else. "The Times'" History of the War will never again be equalled as an historical publication.

The Times
(London, England)
HISTORY
of the WAR

MAIL THIS COUPON

To Canadian Sales Office
"The London Times' History of the War"
70 Bond St., Toronto.

Send me free Illustrated Booklet with full description of "The London Times' History of the War."

Name

Street

City

Safe Summer Diet for Infants

Borden's Eagle Brand—highly nutritious, readily digested and assimilated, uniform in quality and easily prepared. Offers a particularly valuable infant diet during the summer months when heat threatens the wholesomeness of fresh cow's milk.

Eminently suitable as an all-season diet for infants, Borden's Eagle Brand can be prescribed with entire confidence in its wholesomeness and freedom from contamination. Its use eliminates the danger often present in milk of unknown, unidentified origin.

Rich in nutritive value and tissue building elements and at the same time easily digested, Borden's Eagle Brand is pleasingly tolerated by delicate stomachs that many times rebel against an excess of fats.

Samples, analysis and literature mailed on receipt of professional card.

BORDEN MILK CO., Limited

Montreal Vancouver

Borden's

EAGLE BRAND

The Canadian Medical Quarterly

Vol. V., No. 1 — Toronto, Canada — September, 1919

EDITORIAL

CANADIAN PENSIONS

Lieut.-Col. Biggar, Assistant Medical Advisor to the Board of Pension Commissioners, is to be congratulated on the very enlightening address presented before the Academy of Medicine, Toronto, which is to be found elsewhere in our pages. There is not the smallest doubt that many members of the medical profession have not had a clear conception of the basis of evaluation of disability pensions, with the result that the profession as a whole has not been able to consider this weighty problem from its fairest perspective.

A careful review of Lieut.-Colonel Biggar's address, which has been couched in clear, forceful and elucidative language, will go far towards explaining the principles of pensions from the practitioner's view-point. The publication of similar articles should go a long way toward enlightening the profession in the carrying out of one of the chief problems now confronting our country.

THE FEDERAL DEPARTMENT OF HEALTH

We desire to extend our congratulations to Colonel John A. Amyot upon his appointment as Deputy Minister of this newly created department in our Government. The Government is also to be congratulated upon the wise choice which they have made for this important position. Colonel Amyot's career, both in civilian and military life, undoubtedly marks him as a most efficient man for the position. It is hoped that Colonel Amyot may be given a sufficiently free hand in formulating the policy of this Board in order that its functions may be utilized to the best interests of our Dominion.

REHABILITATION

There never was a time in the historry of Canada when reconstruction involving rehabilitation was such an important issue as to-day. The medical profession must be prepared to take its full share in this important task and should bend every effort according to their ability, to carry on this good work.

The series of papers on medical rehabilitation problems which were delivered by Col. McVicar, Col. Elliott and Major Boyer, and which are to be found in this issue, will no doubt be read with a great deal of interest and profit.

REGULARS AND IRREGULARS

It is no secret that at a formidable gathering of labour organizers and leaders a resolution was passed which in no small measure showed allegiance to the cause of the osteopaths, the chiropractors and the various other cults which in the eyes of the regularly recognized medical profession are categorized as the irregulars.

One wonders if this representative body of the toilers of our land really stopped to consider the question very thoroughly and seriously. There is no mistaking the meaning implied. Labour stands opposed to legislation which will suppress the irregulars and leave an open field to the medical profession now operating under Governmental charter. And why is such an attitude adopted? Reasons more numerous than valid may suggest themselves, but one can only wonder why such an expression of opinion should be placed on record in light of present day facts.

A few questions may be aptly addressed both to labour and the medical profession. Upon what body of men falls the large responsibility of medical charity? Who are the men who daily give much of their time to hospital work without remuneration? Who are the persons to be found devising and elaborating plans for medical inspection of school children and the care of the feeble-minded, the Department of Public Health, the supervision of Immigration and all other matters of health and prophylaxis?

Let me ask the gentlemen who speak for labour, if they have stopped to think what bearing this all has upon the social structure and the advancement of that idealistic condition which labour is striving for. And let me further ask most forcefully, how many osteopaths, chiropractors, spine adjusters, etc., are to be found amongst the ranks of the men who are doing so much for humanity to-day, freely and willingly, and in so many instances, gratuitously? Yet labour lines up with the forces which work for money (cash in advance very often), rather than with the section which gives to the toiling class more of itself than any other organization in existence.

But the fault of this condition of affairs (if it be a fault) cannot be laid in its entirety at the door of labour. You, Dr. Blank, must assume your share of the responsibility. Have you placed the situation before your people in its proper light? Have you assured the people of your community that your opposition to legislating the irregulars is founded upon a desire to protect them from the pit-falls of ignorance, rather than to safeguard your own earning power? Have you not rather assumed the quiescent, passive atmosphere of one who has not the courage of his convictions or the proper interest in his profession and his people to make felt the attitude of our profession on this important matter?

The time has long since passed, yet it is not too late, for the medical profession to awaken and by organization, unification and fair, honest publicity let the people know what we actually stand for. Education rather than legislation faces us to-day, and we must face the issue openly rather than hark and bark away in the bush.

Let our legislators know our position. Then place the onus of responsibility on them, and be it on their heads, when once properly informed, to enact laws governing the practice of medicine which are in the best interests of the citizens of our land.

MEDICAL ETHICS AND ADVERTISING

One of the earliest principles inculcated into the mind of the medical student is the refraining from all actions in word, deed, or writing which might be interpreted as placing one in that ignominous field of the medical advertiser. A worthy principle, strongly endorsed and emulated by the great majority of the profession is thus in existence to-day. Hippocrites and Aristotle recognized the dignity and the propriety of such an attitude in ancient days. But one wonders if the profession to-day, in a too earnest endeavour to maintain the high standard of medical ethics, has not gone considerably over the mark to the detriment of our noble calling.

Advertising of utilities and commodities is recognized as sound business. But advertising of human ability (at least medical ability) is considered improper, misleading and most unethical. This point requires no discussion. Now let us go a step further. Practically synonymous with the word advertising stands the word publicity. Has the profession, by its conspicuous suppression of publicity, kept the public properly informed as to the viewpoints, standards and attitude of the profession? A rolling stone drops into the first receptive hole. The public mind lays hold of the information given it and after analyzing all the facts laid bare, formulates its own opinions and conclusions. What is the medical profession doing towards placing itself on record in the proper light? But we must not advertise! No, we must not magnify personalities, but certainly we should, and we must advertise (publish if the former word displeases) our ideals, our principles, and the arguments which we have to advance for the betterment of humanity.

CO-OPERATION vs. OPPOSITION

In defining the word opposition, the Standard Dictionary has the following to say:

Attempt to obstruct or defeat.

Antagonism.

A position confronting another, or placing in contrast.

Being opposite or opposed.

Synonyms—Antipathy, collision, discord, dissatisfaction.

It would appear that from time immemorial up to the present day, practitioners of medicine have been wont to look upon and to classify their neighbours in the profession as their opposition.

Undoubtedly the word has come by its usage without malice aforethought, not being indicative of personal expressions of opinion or thought. Nevertheless, it does not savour of the spirit of co-operation which is needed more to-day than ever before, if medical men are to fulfil their best usefulness in the community.

Let the word opposition be replaced by co-operation. Let us magnify the significance of this suggestion in our daily thoughts and work. The results will foster the advancement of those higher ideals and standards for which the profession is ever striving.

ANDREAS VESALIUS.
(1514-1564.)

Engraved [illegible] by W. Holl after the picture by Jacobus de Cavalo[illegible]

ANDREAS VESALIUS

(1514-1564.)

Montrose W. Liston.

Not far from Orpington, Kent, no longer unfamiliar to many Canadians, and reached by an upland lane skirting Sir John Lubbock's (Lord Avebury's) beautiful pastures, "High Elms," lies the modest little hamlet of Down. Here at the top of the hill stands the house which Charles Darwin made his home "far from the madding crowd" on his return from the memorable voyage in the "Beagle"; and from here in 1859 came forth his epoch-making book, the "Origin of Species," chronicling the resultant conclusions of years of observation and experiment. From Orpington to Darwin's house at Down must have been to many enquiring, enthusiastic Canadians a pleasant "pilgrimage," enabling them to catch something of the quiet, modest personality of the master evolutionist and his simple life. For the lives of the really great are in truth, simple lives, shorn of everything tending to impede or delay them in their journey towards the light and the truth. It is no weakness to feel a touch of "hero-worship" for this bit of hallowed ground associated as it is with the life and work of a man so great, that in spite of the highest tribute of love and reverence accorded him by the greater intellects of his time, the many truths elucidated in even his lesser works are as yet unguessed at by the many. No need to ask, no enthusiastic truth seeker need doubt what the house at Down must have been to such visitors as Sir William Osler, and perhaps, if occasion permitted, to that true poetic soul, Colonel John McCrae, as to many other devotees of the science of healing.

If we call this present time an age of pilgrimages it is no bad sign and argues interest and enthusiasm, as opposed to indifference and apathy. Certain it is that to make true progress in the future we must take the past with us for reference and a guide. We cannot begin from to-day; the outlook must be backwards as well as forwards if past error is to be avoided, and if the sins of the parents are not to be visited on the children. There is little need, perhaps, in this place, to do more than mention the value of retrospect. From the known to the unknown is the meaning of every museum, every library, every natural collection; to know what *is* and *has been*, in order to rightly understand what *may be* is the basis of all research, enquiry, explorations. The present century (it is called century merely for convenience, not because it has any strictly natural limits) acknowledges more than its predecessors, a burning desire for knowledge of origins and causes. It is beyond all other times concerned with origin, with development and with comparison illustrating and elucidating the same. Small wonder then that trained intellect should peer into every nook and cranny of the past, that physiologists should soon become ardent anthropologists in compelling the past to yield up the buried history of primeval man, that botany should recede farther and farther backward, claiming also fossil forms as links in the chain of plant evolution, or that "cave-dwellers"

should find a prominent place in the study and literature of the twentieth century, and the title of "Our Inheritance in the Great Pyramid" be more and more investigated as an up-to-date problem. Whatever the reason may be, the Past has a fascination for the Present, and truth-discerning enquiry proceeds by those new paths and methods which appear likely to offer less speculation and more certainty and truth. Formerly the very rough and ready way of estimating "cause and effect" in anything and everything was responsible for disaster and imposture on all sides: to wit, "Modes of Trial," charges of "Witchcraft," methods of discovery of the "Elixir of Life," the "Philosopher's Stone" and "Perpetual Motion." Misconception led to confusion among many unable to reason, and the opportunity was then created for the cunning impostor and charlatan in religion and science, in which, as Samuel Butler puts it in Hudibrastic verse:

"Doubtless the pleasure was as great
Of being cheated, as to cheat"!

The gullible are by no means extinct in our own day, or a library of literature would not have rallied round the ridiculous contention of certain Americans that Francis Bacon wrote Shakespeare's plays under the pseudonym of Shakespeare, nor would there be a living for palmists and crystal gazers, and perhaps even Charlie Chaplin (to whom no irreverence is meant in mentioning him side by side with Vesalius, as another sign of the times) would not have been handed down to posterity, even in chocolate, as the greatest humourist of the period. We do not now banish or burn our Edisons and Pasteurs, nor are they kept in prison until they recant their heresies of discovery to the authority of either "Church" or "State."

We have already hinted at the penalties exacted from the good and true who by heresies and innovations have paved the way for advancement in human progress. History is packed with evidences of such crimes committed by authority against those who have left the beaten track at the bidding of conviction and enlightenment.

With few exceptions all "innovation," all "new births" have been dangerous to their authors. The Book of Martyrs is a classic, but most of the world's atrocious commitments are not recorded there. Neglect, confiscation, pillage, death by burning and imprisonment were the rewards not of fraud, deception, quackery and all other breaches of the commandments, but of those who invented, discovered and created, and whose genius was to open up new learning, true science and real progress in the world's natural evolution.

The practice of the physician in all ages has been, as a matter of enquiry concerning life and death, associated and entangled with charlatanry, imposture and error. Quacks thrive at all times as long as the public mind is unable or unwilling to differentiate between mere astuteness, chicanery and cunning, and the truths maintained by inductive reasoning and sound science. Progress attending the physician's art and science has been due to the disentanglement of truth from falsehood, to the trimming and lopping away the excrescences added by successive gen-

erations of obstructionists and charlatans whose aim was "to darken counsel without knowledge" for their own various purposes.

Andreas Vesalius lived three centuries before Charles Darwin (1514-1564). Each had to struggle against the established authority and belief of his time, and each has achieved that success and honour which scientific truth only can finally command, and which is not dependent upon the fashion or whim of the age. It is not for nothing that the hall of the Natural History Museum, South Kensington, is dignified by two statues, superb characteristic interpretations in geologic stone of Charles Darwin and Richard Owen. The museum of the Royal College of Surgeons is a monumental relic of John Hunter, a natural and worthy descendant in anatomy of Andreas Vesalius. The life itself of John Swammerdam was consumed in his fervent arduous labours in making and drawing entomological preparations showing true metamorphosis. The modern Fabre in his perfect love for his science reminds us of the intense self-sacrifice of Swammerdam to which his friend Boerhaave testifies in Swammerdam's "Book of Nature," a noble folio translated into English and published in 1758, with admirable copper plates of the author's discoveries. But friends stepped in to advise with Swammerdam, and he was more than half convinced that his religion might suffer by continuing his researches. Moreover his eyes were permanently injured and his work ceased.

Vesalius was born at Brussels in 1514. His father was apothecary to Charles V., and several of his ancestors were scholarly physicians. He was sent to school and to the University at Louvain, and from his early years showed much interest in animal structure, endeavouring to dissect whatever came in his way. In time he attended courses of study in anatomy under Sylvius at Paris, where during the lecture of the professor, illiterate barbers were employed to make dissections in demonstration. So bad were the attempts of these clumsy assistants, and so little attention was paid to their efforts by the lecturer, that Vesalius was disgusted, and on an occasion took the dissection into his own hands and demonstrated with considerable success. "I had," he says, "to put my own hand to the business."

His opportunities for dissecting thoroughly the human body, however, seem to have been very few. The skeleton, however, was obtainable, and he spent considerable time in the burial grounds of Paris studying bones, often in competition with hungry dogs who visited the spot. He returned to Louvain and resumed his study of anatomy. In 1537 he travelled to Venice, and at one of the hospitals may have made the acquaintance of Ignatius Loyola, one of the monks in charge, and destined to become the founder of the Order of the Jesuits. Meanwhile Vesalius was concentrating all his intellect and enthusiasm upon work which in a few years was to be given to the world as the now famous Fabrica Humani Corporis of 1543.

It is no unusual thing to find many such divergences from a given point as shown by the careers of Loyola and Vesalius, since

"God fulfils himself in many ways."

Poor humanity's obligations to both these pioneers are many, and whatever abuses may have crept in later to disfigure their original aims and conclusions are of

secondary growth. Are all Lutherans worthy of Luther, or Wesleyans of John Wesley? How many professing Christians realize Christ? It would take a number of those who speak of his doctrine and method to make one Socrates. The tendency of all streams running farther and farther from their source is to grow turbid, to lose their transparent clearness as they mingle with other streams, and the founder's message of simple truth and textual purity is easily garbled and misrepresented in even the first generation; later it is scarcely recognizable.

The new work of Vesalius proceeded successfully, bringing him more and more students, as his masterly dissections acccompanied his lectures. But difficulties were ahead. Like all his predecessors he attempted to follow the established "reading" of Galen, and did so until he found that the dictum of Galen, till now the unquestioned authority in anatomy, was at variance with his own practical demonstration. Often he could not reconcile his own findings with the accepted principles of the great authority. His own eyes convinced him of the truth of his own observations and any further dependence upon Galen was given up. The training for the student of that day was not to see exact dissection, but to hear Galen read and preached. Vesalius faced this state of things with his own teaching, based upon his own practice, admitting the dictum of Galen only where it coincided entirely with his own practical work.

The time was daily becoming more and more favourable to "new learning," to new and real progress throughout Europe. Reformation was abroad in many places. In art, in literature, in painting and poetry new life was upspringing. In Italy, especially, the studios, colleges and universities were palpitating with new life. The period was ripe for the advent of great leaders and independent thinkers, especially for those whose philosophy was content to hasten slowly. Many were precipitated by over enthusiasm and met banishment and death.

With successful manipulation and increased interest among the hundreds of students in attendance at the Padua lectures, Vesalius realized the difficulty of obtaining sufficient material for demonstration. Every possible source was applied to, but the watchful eye of the church high in authority hampered progress. For years the church had regarded the dissection of a human corpse as desecration, and in Spain particularly heavy penalties were enforced. In Italy conditions were easier, but it was still difficult to verify traditions of anatomy by actual observation.

After five years' untiring devotion to original research, and before Vesalius was 28 years of age, his "Structure of the Human Body" (Fabricus Humanis Corporis) was completed for the press and published at Basel in the next year, 1543, with engraved illustrations. It is this book which accords to Vesalius the honour of being the founder of modern anatomy. Naturally this work is regarded as a forerunner of the achievements in the next century of Harvey in establishing physiology. The Fabrica ranks in its conception of essential principles with such books as Roger Bacon's "Opus Majus," Francis Bacon's "Novum Organum," and Newton's "Principia." A little quarto appeared in 1699, which seems to reach out a hand across the centuries to both Darwin and Vesalius, Edward Tyson's "Anatomie of

a Pygmie." Professor Huxley characterizes this beautifully illustrated monograph on the Chimpanzee as a work of remarkable merit (see Huxley's "Man's Place in Nature"). A copy of Tyson's book was formerly seen on the shelves of the Natural History Museum (S. Kensington).

The publication of Vesalius' great work makes it clear that in some instances, out of dread of the consequences of combating Galen's authority, he accommodated his statements to the latter's dogmas, for he avows he "did not dare to swerve a nail's breadth from the doctrines of the Prince of Medicine." He was, moreover, urged by friends not to publish for fear of making enemies. However, the publication was completed during his absence from Padua, and feeling ran high against him in certain quarters. His master, Sylvius, and some of his own pupils attacked him, while Vesalius volunteered public tests of all he had maintained. All this, however, including his lectures in public at Pisa, Bologna, etc., did not suffice to justify him in the eyes of authority, and he retired disheartened and disgusted. In a storm of passion he burnt the remainder of his valuable manuscript treatises, and the Emperor, Charles V., enlisted his services as Court Physician. The perfunctory offices incidental to this post, with constant travel, wearied him and enervated his spirit. At thirty, the life that might have yet produced so much, was practically over.

When Charles V. retired into the cloister, Vesalius transferred his services to Philip II. and returned with him to Spain. His new patron was of vastly inferior capacity to his father and showed Vesalius no sympathy.

Later he wrote to his successor, Falloppius, at Padua, "I still live in hope that at some time or other, by some good fortune, I may once more be able to study that *true bible,* as we count it, of the human body and of the nature of man."

In 1563 Vesalius made a pilgrimage to Jerusalem, some say as an expiation for sacrilege in a post-mortem examination, others that, sick and wearied and harassed with everything, he intended never to return. It is ascertained, however, that on his way back, in 1564, he was put ashore on the island of Zante and there passed away.

Vesalius by enquiry initiated and established a new method in anatomy and substituted personal observation for interpretation of the statements of others. Unlike his predecessors, Mundinus and others, he was absolutely successful. His book proclaimed the new method freed from the suppression of authority. Some years later Harvey's great physiological discovery of the circulation of the blood was made possible through his labours.

Let us hope that some prevision of the philosophy of a brother physician, Sir Thomas Browne, may have been his at the last, and that he realized with all noble believers that

" 'Tis all one to lie in St. Innocent's Churchyard as in the sands of Egypt. Ready to be anything, in the ecstasy of being ever, and as content with six foot as the moles of Adrianus."

The portrait frontispiece to this brief tribute to a "beloved physician" is reproduced from a picture by John de Calcar, engraved by Holl.

SHAKESPEARE AS A GUIDE IN THE ART AND PRACTICE OF MEDICINE*

Sir St. Clair Thomson, M.D., F.R.C.S.
Professor of Laryngology, King's College, London, England.

Introductory: Thomas Sydenham (1629-1689), the first great physician of the 17th Century to profit by the work of Harvey and the Baconian method of reasoning, was asked by Sir Richard Blackmore what books of medicine he should study. "Read 'Don Quixote'" was the unexpected reply; "it is a very good book. I read it myself still." The great Sydenham, in one telling sentence, thus taught us physicians that we will be incomplete practitioners of our art, if we limit our studies to the science of our calling. In the present day, with so much talk of the progress of scientific medicine, of the exact methods of the laboratory, of team work, of a state medical service and so forth, it is important for us to listen to words of wisdom which were written not for a day, but for all time. Let us follow the advice of Sydenham, but by turning to the teaching of the great contemporary of the author of "Don Quixote." Cervantes and Shakespeare died on the same day, the 23rd April, 1616. Sydenham was born eight years later, and the above story shows that our great poet was still awaiting the recognition of posterity; for if any of us to-day had to name the one author which every medical man should study deeply, with diligence and delight, surely it would be the greatest of our great Englishmen, William Shakespeare, who died three hundred and three years ago.

The Genius of Shakespeare: This "myriad-minded man" astonishes everyone who is once attracted by his genius, and various professions and callings have produced books to show that he must have been a soldier, a sailor, a lawyer, an astronomer, a divine, a printer, a courtier, a traveller, a sportsman, an angler, a bird fancier, and a gardener, as well as a poet, actor and playwright.

Medicine in Shakespeare's Time: His knowledge of the medicine of his own time, his approval of the better part of it and his reasonableness in praising principally the physiological side of it, is remarkable when we remember that he lived in an age when witchcraft was firmly believed in; when amulets were worn to ward off disease, and charms, incantations and philtres were used for the cure of it. In Shakespeare's day the astrologer was ready to raise a devil or cast a horoscope for a fee. Pills made of the skull of a man who had been hanged, a draught of spring water from the skull of a man who had been murdered, the powder of a mummy, the oil of scorpions, the blood of dragons, the entrails of wild animals, and all sorts of filthy dejecta were in those times recommended for special diseases; while

*An Address on Medicine delivered in Toronto before The Ontario Medical Association, May 18th, 1949.

tumours were supposed to be cured by stroking them with the hand of a dead man. It was only in the year 1616, and in the very week preceding Shakespeare's death, that William Harvey first enunciated his memorable discovery to the Royal College of Physicians, in these remarkable words: "Whence it follows that the movement of the blood is constantly in a circle, and is brought about by the beat of the heart."

I refer to this birth of modern medicine, and to the primitive practice of Elizabethan days, so that we can better appreciate the marvels of our greatest genius. But having dealt elsewhere with his knowledge of medicine, chiefly the scientific side of it, I propose this evening to consider how this layman can help us physicians in the art and practice of our calling.

Esteem of Our Profession: Cerimon in "Pericles" is both a physician and a nobleman, so that the good social status of the medical man is thus accepted and illustrated. No nobler panegyric of our profession could be written than that put in the mouth of Cerimon:

Cerimon:

"By turning o'er authorities, I have
Together with my practice made familiar
To me and to my aid, the blest infusions
That dwell in vegetives, in metals, stones;
And can speak of the disturbances that Nature
Works, and of her cures; which doth give me
A more content in course of true delight
Than to be thirsty after tottering honour,
Or tie my treasure up in silken bags,
To please the fool and death."

Pericles III., 2.

It is to be noted that Shakespeare in these lines, recognizes, even in those Elizabethan days of superstition and wholesale drug-taking, the "*vis medicatrix naturae*," and gives the quite modern idea of curing our patients:

"With good advice and little medicine."

Henry IV., Part II., II., 1.

He repeatedly indicates his belief in the efficacy of our efforts:

"Give physic to the sick, ease to the pain'd;
The patient dies while the physician sleeps."

(Lucrece, 120-130.)

Although we can never escape final defeat:

"But I consider
By medicine, life may be prolonged; yet death
Will seize the doctor too."

(Cymbeline V., 5.)

Medical Note-Taking: A justification for our case-books is found in the wise note-taking of the cautious Scotch doctor who attends Lady Macbeth:

'I will set down what comes from her to
Satisfy my remembrance the more strongly."

(Macbeth V., 1.)

And further commendation of note-taking is found in one of the sonnets:

"The vacant leaves thy mind's imprint will bear,
Look, what thy memory cannot contain,
Commit to these waste blanks, and thou shalt find
These children nurs'd, deliver'd from thy brain,
To make a new acquaintance of thy mind.
These offices, so oft as thou wilt look,
Shall profit thee, and much enrich thy book."
(*Sonnet 77.*)

Patients sometimes appear to resent our inquiries when we take notes on their past medical history. Shakespeare fully approves our custom:

"There is a history in all men's lives,
Figuring the nature of the times deceas'd:
The which observ'd, a man may prophesy,
With a near aim, of the main chance of things
As yet not come to life."
(*Henry V., Part II., iii., 1.*)

Bedside Manner: When called to a case we doubtless begin by the simplest and most friendly investigation, in the manner of Pinch in the "Comedy of Errors," who, although an irregular practitioner, had quite the bedside manner when he says:

"Give me your hand, and let me feel your pulse."
(*IV., 4.*)

Functional and Organic Disease: We will have to distinguish between early disordered function and disease, as is well shown in the following dialogue:

King Henry:
"Then you perceive, the body of our kingdom,
How foul it is; what rank diseases grow,
And with what danger, near the heart of it."

Warwick:
"It is but as a body, yet, distemper'd,
Which to his former strength may be restor'd,
By good advice, and little medicine."
(*Henry IV., Part II., iv., 1.*)

Physical and Mental Conditions: With all our patients we will never forget they are sick folk, so that we will neither judge them as we would healthy men, nor let ourselves be carried away by their morbid fears. Lady Constance recognizes this in herself, when she exclaims:

"For I am sick and capable of fears."
(*King John, iii., 1.*)

King Lear excuses the behaviour of his son-in-law by attributing much of his conduct to physical conditions:

"No, but not yet,—may be, he is not well:
Infirmity doth still neglect all office,
Whereto our health is bound; we are not ourselves,
When nature, being oppress'd, commands the mind

To suffer with the body: I'll forbear;
And am fallen out with my more headier will,
To take the indispos'd and sickly fit
For the sound man."

(King Lear, ii., 4.)

Even when driven nearly mad, poor Lear seeks for a pathological explanation of his daughter's ingratitude:

"Then let them anatomize Regan: see what breeds about her heart. Is there
Any cause in Nature, that makes these hard hearts?"

(King Lear, iii., 6.)

Digestion: Supposing we find that the case is one of digestive trouble, the following regulations of Shakespeare must be remembered:

"Unquiet meals make ill digestions."

(Abbess in Comedy of Errors, v., 1.)

"In food, in sport, and life-preserving rest,
To be disturb'd, would mad a man or beast."

(Abbess in Comedy of Errors, v., 1.)

"Now good digestion wait on appetite,
And health on both!"

(Macbeth, iii., 4.)

Some cases of dyspepsia may be benefited by a stroll in the open air soon after meals. Patroclus addressing on behalf of his chief, the Princes who made an afternoon call, says:

"He hopes it is no other
But for your health and your digestion sake,-
An after-dinner's breath."

(Troilus and Cressida, ii., 3.)

Fainting: In the treatment of an ordinary fainting attack how slow is the willing but untrained public to act on the first principle so well expressed by Shakespeare three hundred years ago in the following lines:

"Stand from him, give him air; he'll straight be well."

(Henry IV., Part II., iv., 4.)

"So play the foolish throngs with one that swoons;
Come all to help him, and so stop the air
By which he should revive."

(Measure for Measure, ii., 4.)

Open-air Treatment: Three centuries before the profession had thought of open-air treatment, Shakespeare had advised:

"The most wholesome physic of thy health-giving air."

(Love's Labour Lost, i., 1.)

and recommended it as one of Nature's best restoratives:

"I pray you give her air,
Gentlemen,
This Queen will live; nature awakes; a warmth
Breathes out of her."

(Pericles, iii., 2.)

"His Highness yet doth speak; and holds belief,
That, being brought into the open air,
It would allay the burning quality
Of that fell poison which assaileth him:
Let him be brought into the orchard here."
(King John, v., 7.)

Then, on being carried into the orchard of Swinstead Abbey, King John's first exclamation is:

"Ay, marry, now my soul hath elbow-room."

Change of Scene and Climate: The advantages of travel, a sea voyage, or change in surroundings, particularly in neurasthenia, are brought to our recollection by the King of Denmark, when speaking of the projected trip to England of his somewhat trying stepson, Hamlet:

"Haply, the seas, and countries different,
With variable objects, shall expel
This something-settled matter in his heart."
(Hamlet, iii., 1.)

Mirth and Distraction: When considering therapeutic measures we not uncommonly meet with a case which only requires the following pleasant prescription:

"For so your doctors hold it very meet,
Seeing too much sadness hath congeal'd your blood,
And melancholy is the nurse of frenzy;
Therefore they thought it good you hear a play
And frame your mind to mirth and merriment,
Which bars a thousand harms and lengthens life."
(The Taming of the Shrew, Induction, Sc. 2.)

Recreation: If recreation is neglected, there must ensue depression, ill-health, and susceptibility to infection and disease:

"Sweet recreation barr'd, what doth ensue
But moody and dull melancholy,
Kinsman to grim and comfortless despair,
And, at her heels, a huge infectious troop
Of pale distemperatures, and foes to life?"
(Abbess in Comedy of Errors, v., 1.)

How wise, therefore, is the following joyous resolution:

"Let me play the fool,
With mirth and laughter let old wrinkles come;
And let my liver rather heat with wine,
Than my heart cool with mortifying groans.
Why should a man whose blood is warm within,
Sit like his grandsire, cut in alabaster?
Sleep when he wakes? and creep into the jaundice
By being peevish?"
(Merchant of Venice, i., 1.)

Jaundice: The last quotation may help to remind us that depressing emotions should be looked for as causes of jaundice or intestinal toxæmia, and this is also referred to in the line:

"What grief hath set the jaundice on your cheeks?"
(Troilus and Cressida, v, 3.)

Alcohol: Our patients, at least in damp, not to say, wet England, are apt to ask our advice on the subject of alcohol. It is as impossible to saddle Shakespeare with extreme views in regard to alcohol, as it is in reference to any other subject on which there is no finality; he is too great an artist and too deep a philosopher to be didactic. He is certainly no advocate of intemperance. Total abstainers may claim him as a supporter on the strength of his commendation of:

"Honest water, which ne'er left man in the mire."
(Timon of Athens, i, 2.)

a quotation which is inscribed on the fountain erected in Stratford on Avon by American admirers. But he mitigates this commendation with the proviso that water is—"That which is too weak to be a sinner," and the rigid prohibitionist may be met with the well-worn quotation, "Dost thou think because thou art virtuous there shall be no more cakes and ale?" Shakespeare repeatedly paints in vivid colours the loathsomeness and degradation of alcoholic excess, and he is evidently in favour of temperance. How often have we to urge our patients to:

"Ask God for temperance: that's the appliance only
Which your disease requires."
(Henry VIII, i, 1.)

Wine is praised, but always with discretion:

"Come, come, good wine is a good familiar creature,
If it be well used:
Exclaim no more against it."
(Othello, ii, 3.)

"Good company, good wine, good welcome
Can make good people."
(Henry VIII, i, 1.)

I am not sure if here in Canada you had a no-treating order, or even know what it means. Well, during the war, in the Motherland, in order to reduce the unnecessary consumption of alcoholic beverages it was ordained by the Defence of the Realm Act that it was illegal and punishable for any man to stand another a drink. Cassio would have welcomed this order, for when Iago says to him,

"Come, lieutenant, I have a stoop of wine."

he replies:

"Not to-night, good Iago. I have very poor and unhappy brains for drinking:
I could well wish courtesy would invent some other custom of entertainment."
(Othello, ii, 3.)

Another character (Hostess Quickly) did not require a no-treating clause to support her when she said courageously:

"I'll drink no more than will do me good, for no man's pleasure, I."
(Second Part King Henry IV, ii, 4.)

Diet: Shakespeare tells us that over-eating and starvation are equally unhealthy. Nerissa, in the Merchant of Venice, exclaims:

"For aught I see they are as sick that surfeit with too much, as they that starve with nothing."

(*i., 2.*)

And the British belief in plenty of beef is somewhat shaken by Sir Andrew Ague-cheek, when he says:

"I am a great eater of beef, and I believe that does harm to my wit."

(*Twelfth Night, i., 3.*)

We can agree with the second Lord in "All's Well that Ends Well" (iii. 1), when he asserts:

See. Lord.—But I am sure, the younger of our nature,
That surfeit on their ease, will day by day,
Come here for physic."

(*All's Well That Ends Well, iii., 1.*)

Tobacco: How glad would we be to have Shakespeare's opinion of tobacco! Unfortunately I find no mention of it, though snuffing is referred to.

Sleep: There is one function of the "*mens sana in corpore sano*" which I never appreciated to its full value until taught by Shakespeare, and that is the importance of sound, sufficient and regular sleep. He shows a profound regard for the "honey dew of slumber, great Nature's second course, chief nourisher in life's feast, the balm of broken senses, the best of rest, Nature's soft nurse, the season of all natures," as he lovingly describes it. He praises death because it gives us:

"Silence and eternal sleep."

(*Titus Andronicus, i., 2.*)

Indeed it has been suggested that the poet must himself have suffered from sleeplessness, so vividly does he describe the horror of insomnia, so wisely does he regard the invoking of sleep, and so warmly does he praise the value of being able to steep our senses in forgetfulness. These readings impel me to suggest that we might all take a greater care and interest in this "balm of hurt minds, sore labour's bath," and that we often fail to appreciate the great value of "Nature's second course" in the cure of disease.

"Sleep that knits up the ravell'd sleeve of care,
The death of each day's life, sore labour's bath,
Balm of hurt minds, great nature's second course,
Chief Nourisher in life's feast."

(*Macbeth, ii., 2.*)

"The best of rest is sleep,
And that thou oft provok'st; yet grossly fear'st
Thy death, which is no more."

(*Measure for Measure, iii., 1.*)

"O sleep! O gentle sleep!
Nature's soft nurse! how have I frighted thee,
That thou no more wilt weigh my eyelids down
And steep my senses in forgetfulness?"

(*Henry IV., Part II., iii., 1.*)

For sleep to be beneficial a man must be able to "thank God for his happy dreams," in which "the slumber of the body seems to be the waking of the soul," as opposed

to what Macbeth calls "the affliction of those terrible dreams that shake us nightly." (iii., 2.)

We should frankly tell our patients that the sweat of industry is the best soporific:

"Come, our stomachs
Will make what's homely, savoury: weariness
Can snore upon the flint, when rusty sloth
Finds the down pillow hard."
(*Cymbeline*, iii., 6.)

Suggestion: We all practise suggestion, even unconsciously. Not a prescription is written which is not fortified or weakened by it; not a dose of medicine is swallowed without it; not a prognosis given which is not enhanced or else enfeebled by it. Shakespeare tells us:

"They'll take suggestion as a cat laps milk.
They'll tell the clock to any business that
We say befits the hour."
(*The Tempest*, ii., 1.)

And we all know that Hamlet fooled poor Polonius by suggestion. Even in the pain of old scars the influence of suggestion can be exercised. Marcius says:

"I have some wounds upon me, and they smart
To hear themselves remember'd."
(*Coriolanus*, i., 9.)

And this remarkable power may be utilized to resist even the onset of death:

"Thy conceit is nearer death than thy powers. For my sake, be comfortable;
Hold death awhile at the arm's end."
(*As You Like It*, v., 2.)

Encouragement: We can never practise medicine very successfully unless possessed with courage and the art of inspiring it. Our fellowmen are not themselves:

"When Nature, being oppress'd commands the mind
To suffer with the body."

And therefore we must encourage them with Iago's words:

"How poor are they that have not patience!
What wound did ever heal but by degrees?"
(*Othello*, ii., 3.)

Sympathy: It is a truism to recall that a large part of the physician's power lies in his capacity for sympathy. The loneliness of those who suffer is chiefly alleviated by the understanding and fellow regard which it is our duty and happy privilege to dispense:

"Who alone suffers, suffers most i' the mind,
Leaving free things and happy shows behind;
But then the mind much sufferance doth o'erskip
When grief hath mates, and bearing fellowship."
(*King Lear*, iii., 6.)

We should anticipate a sick man's fears, and we will be quicker in getting in sympathy with a sufferer if we detect that he shares Macbeth's feeling that:

"Present fears are less than horrible imaginings."
Macbeth i., 3

We may have to tell a patient that:

"The fault, dear Brutus, is in ourselves, not in our stars."
(Julius Caesar, i., 2.)

when we don't get well quicker, and his self-resistance may be raised by reminding him that:

"Our remedies oft in ourselves do lie,
Which we ascribe to heaven."
(All's Well That Ends Well, i., 1.)

But stern philosophy such as that which tells us that:

"Men must endure
Their going hence, even as their coming hither,
Ripeness is all.
(King Lear, v., 2.)

is best kept for ourselves and our friends when in robust health. Needless to say, the important thing is to avoid being merely platitudinous, and see that we do not attempt to "patch our grief with proverbs" (Much Ado About Nothing, v., 1), for:

"Everyone can master a grief but he that has it."
(Much Ado About Nothing, iii., 2.)

After all:

"'Tis all men's office to speak patience
To those that wring under the load of sorrow;
But no man's virtue, nor sufficiency,
To be so moral when he shall endure
The like himself."
(Much Ado About Nothing, v., 1.)

Hope: The adage "While there's life there's hope" is as old as the world. "*Dum spiro spero.*" Shakespeare reminds us that:

"The miserable have
No other medicine, but only hope;
I have hope to live, and am prepar'd to die."
(Claudio in Measure for Measure, iii., 1.)
"True hope is swift, and flies with swallow's wings;
Kings it makes gods, and meaner creatures kings."
(Richard III., v., 2.)

Prognosis: Next in importance to diagnosing his case correctly, a patient looks to us for guidance by our prognosis. Now Shakespeare advises that:

"Since the affairs of men rest still uncertain,
"Let's reason with the worst that may befall."
(Julius Cæsar, v., 1.)

because:

"To fear the worst oft cures the worst."
(Troilus and Cressida, iii., 2.)

In other words, let us always anticipate the worst that may happen, but not expect it.

On the difficult and painful duty, so often laid upon us, of giving a gloomy prognosis, what better guide of conduct can a physician have than that given by Shakespeare?:

"Though it be honest, it is never good
To bring bad news; give to a gracious message
A host of tongues; but let ill tidings tell
Themselves, when they be felt."
(Anthony and Cleopatra, ii., 5.)

He also advises us that we might often spare ourselves the pain of breaking bad news, and our patients the shock of hearing it, if we do but remember that:

"He that but fears the thing he would not know,
Hath, by instinct, knowledge from others' eyes
That what he fear'd is chanced."
(Henry IV., Part II., i., 1.)

And often we most sadly feel that:

"Yet the first bringer of unwelcome news
Hath but a losing office; and his tongue
Sounds ever after as a sullen bell,
Remember'd knolling a departing friend."
(Henry IV., Part II., i., 1.)

Old Age: The diseased conditions peculiar to old age demand the consideration of all of us. The characteristics of our "sad humanity" (Sonnet 65) as it falls into the "sere and yellow leaf" (Macbeth v., 3) and "declines with the vale of years" (Othello, iii., 3) are wistfully, sadly, and pitifully described by Shakespeare. "Old men forget" (Henry V., iv., 3) and we "Should be considerate for their memories." Age may reveal a "poor, infirm, weak, and despised old man," like Kink Lear (Act iii., Sc. 2), and we must be tender to them. They may be foolish or garrulous, and we must be tolerant:

"I am a very foolish, fond old man
. . .
You must bear with me.
Pray you now forget and forgive: I am old and foolish."
(King Lear, iv., 7.)
"A good old man, Sir; he will be talking; as they
say, when the age is in, the wit is out."
(Much Ado About Nothing, ii., 3.)

Shakespeare reminds us that although the seniors should attract "that which should accompany old age, as honour, love, obedience, troops of friends" (Macbeth v., 3), still the physical characteristcs of increasing years are not always alluring. The Chief Justice tells poor Sir John Falstaff very rudely that his appearance of age no longer tallies with his young and joyous spirit:

"Chief Justice:

"Do you set down your name in the scroll of youth, that are written down old with all the characters of age: Have you not a moist eye? A dry hand? A yellow cheek? A white beard? A decreasing leg? An increasing belly? Is not your voice broken? Your wind short? Your chin double? Your wit single? and every part about you blasted with antiquity? And will you yet call yourself young? Fie, fie, fie, Sir John!"

(Henry IV., Part II., i., 2.)

DEATH: Before "we have shuffled off this mortal coil" and start for:

"The undiscover'd country, from whose bourn
No traveller returns."

(Hamlet iii., 1.),

we are reminded by Shakespeare that:

"Yet in this life
Lie hid more thousand deaths; yet death we fear,
That makes these odds all even."

(Measure for Measure, iii., 1.)

And he comforts us all by declaring that "The sense of death lies most in apprehension." (Ibid, iii., 1.)

Should we strive to prolong life in the old when afflicted with hopeless forms of disease? Do we not sometimes feel inclined to echo the exclamation of the Earl of Kent in regard to poor, old, worn-out Lear?

"Vex not his ghost; O, let him pass! he hates him,
That would upon the rack of this tough world
Stretch him out longer."

(King Lear, v., 3.)

LIFE: And so in his profound knowledge of human life and human nature, from the day:

"When we are born and cry that we are come
To this great stage of fools."

(King Lear, iv., 6.)

until the:

"Last scene of all
That ends this strange eventful history."

(As You Like It, ii., 7.),

we see why Shakespeare is, and always must be, one of the greatest masters of medicine. His astonishing acuteness of observation, his familiarity with the ways and thoughts of frail humanity, his discrimination of our diseases according to age, sex and circumstances; his sensitive regard for "Life's fitful fever" (Macbeth iii., 2), his sweet reasonableness and deep human sympathy, his profound knowledge of those parts of physiology and pathology which may be studied in the daily life of the street, the market, the tavern, the court, the camp or the home, are subject to no errors of investigation; they are eternally true. Shakespeare has epitomized the whole gamut of human life in the twenty-eight pregnant lines of the humourously melancholy Jacques:

"All the world's a stage,
And all the men and women merely players
They have their exits and their entrances;
And one man in his time plays many parts,
His acts being seven ages. At first the infant,
Mewling and puking in the nurse's arms.
Then the whining schoolboy, with his satchel,
And shining morning face, creeping like snail
Unwillingly to school. And then the lover,
Sighing like a furnace, with a woful ballad
Made to his mistress' eyebrow. Then the soldier
Full of strange oaths, and bearded like the pard,
Jealous in honour, sudden and quick in quarrel,
Seeking the bubble reputation
Even in the cannon's mouth. And then the Justice
In fair round belly, with good capon lin'd,
With eyes severe and beard of formal cut,
Full of wise saws, and modern instances;
And so he plays his part. The sixth age shifts
Into the lean and slipper'd pantaloon,
With spectacles on nose, and pouch on side;
His youthful hose, well sav'd, a world too wide
For his shrunk shank; and his big manly voice,
Turning again towards childish treble, pipes
And whistles in his sound. Last scene of all
That ends this strange eventful history,
Is second childishness, and mere oblivion,
Sans teeth, sans eyes, sans taste, sans everything."

(As You Like It, ii., 7.)

A Master of Medicine: Hippocrates tells us that, "life is short, art is long and experience is fallacious." The science of medicine progresses, but human nature remains the same; it cannot be altered by Acts of Parliament, and the foundations of physiology are fixed. Shakespeare's plays will be read by physicians when every medical treatise of the present year will be lying on the dust heaps of literature, and the works of this master of medicine will continue to be studied by future generations until "there shall be no more death, neither sorrow nor crying, neither shall there be any more pain."

"Spencerwood," Quebec, residence of Lieut. Governor. Garden party given in honor of Canadian Medical Association, June 25, 1919.

DISABILITY PENSIONS*

J. L. Biggar, M.B. (Tor.) Lt.-Col. R.O.,
Assistant Medical Adviser, Board of Pensions Commissioners for Canada.

Mr. President and Gentlemen:—

I feel that it is an extremely great privilege to have the opportunity of speaking to you on a subject the importance of which I think is only beginning to be realized. I feel particularly honoured in speaking to the Toronto Academy of Medicine which contains many men at whose feet I sat and at whose feet I should still be sitting. I am very proud to appear as a representative of the Board of Pensions Commissioners and to present to you a subject which you consider worthy of attention.

At the outset of any discussion of Disability Pensions, it is essential that two facts be very forcibly emphasized. First, there is no system of pensions of any kind that does not run an immense danger of serious abuse. The Carnegie Foundation some years ago, appointed a committee to study all the known pension schemes of every kind. After a very thorough investigation one of the main conclusions to which the committee came was that any pension system is one of the greatest breeders of selfishness that can exist in a social system.

The other fact which should be emphasized is that in our post-war effort, in the official activity of this country in relation to the returned disabled soldier, there is probably nothing that is being done that is really less vitally important than Pensions. When pensions are contrasted with the other measures of rehabilitation, the truth of this statement becomes very apparent.

These measures fall into two categories, the scientific and the economic. The former include, first, the reduction of the disabling condition to its minimum; secondly, the functional re-education of damaged parts; and thirdly, the provision of artificial appliances. Now, however well or ill these may be practically carried out, ideally the Government does not want to dismiss from its service any man whose disability has not been brought to its irreducible minimum; does not want to dismiss from its service any man whose loss or lessening function has not been restored to the utmost extent that medical science can restore it; and does not want to dismiss any man who has not been provided with the best possible artificial appliance. These are the things for which the medical profession in the Army and in the State service are responsible.

In the second category the Government is endeavouring to restore economic independence by three measures: First, through the extensive and effective system of Vocational Training which is producing the most excellent results; secondly, by an organization of Employment Bureaus throughout the country, which not only find suitable positions for the trained disabled men, but also, by means of a follow-up plan, keep them in those positions; and thirdly, lastly, and least importantly, by the payment of pensions.

This perhaps, is not the line along which one is inclined to think when one is discussing his case with the individual disabled soldier. The individual disabled soldier has all these things at his command. He has the opportunity of profiting by them. If his disability has not been brought to its irreducible minimum; if his function has not been re-educated to the best possible extent; if he has not been provided with the best artificial appliance, a part of the Government service is at fault, and an application to the Department of Soldiers' Civil Re-establishment will correct the error. If he has not profited by a course in Vocational Training, and has not benefited by the allied activity of being properly placed in employment and kept there, again the Government service or the man himself is at fault; generally the latter. Broadly speaking all one ordinarily thinks of is, how much pension is he getting?

The Canadian Pensions Law embodies three features which are, I think, more equitable, more inclusive and more generous than any other pensions law in existence. These three features are: first of all, that a man is pensionable for any disability which occurs or is aggravated on his service, regardless of its cause or of the length of service. If a man has enlisted, serves for 24 hours, gets hit with a puck at a game of hockey, suffers a fracture of the leg and develops as a result a difficulty in walking, he is pensionable. There is no question regarding the origin of his disability, save that it must not have resulted from vice or misconduct. In the Pensions Law of almost every other country, pension is refused or modified if the disability did not originate "on duty," or "in line of duty," or some such proviso as that. The effect of such a limitation is to necessitate documentary proof of the circumstances under which every injury or disease occurred, and this greatly complicates the business of pensioning and involves delays which increase the hardship of the disabled man.

A second feature of the Canadian Pensions Law is of tremendous importance. It is the regulation which states that the pensioning body is prohibited from considering a man's pre-war occupation in estimating his pensionability. As the phrase has it, the man stands before the Pension Board stripped of income and employment. From the Pension Board's point of view, his economic position is immaterial. His physical disability alone is the deciding factor.

The third feature is that his activity after discharge has absolutely no effect upon his pension. It does not matter whether he goes back to the enjoyment of an income of $25,000 a year in his own right, or whether he goes back to a business in which his ability nets him, say $5,000 or $10,000 a year, or whether he goes back to his previous employment and succeeds in earning only three-quarters of his pre-

war income, or whether he refuses to work at all. Whatever he may choose to do, his post-discharge activity does not affect his pension.

According to the Canadian Pensions Legislation, a disability pension is defined as a sum of money paid to a citizen who has suffered on service a loss or a lessening of one of his normal abilities. The word "disability" is used in a very strict sense in this legislation; it means the loss or lessening of a normal ability and nothing else. Pensions are not given for heart disease; they are not given for amputated limbs; they are not given for enucleated eyes; they are not given for hernia; they are not given for active tuberculosis. They are given for the effects of these conditions on the man's normal abilities. In so far as an enucleated eye results in defective vision, the man is pensionable. In so far as an amputated limb results in difficulty in walking, the man is pensionable. In so far as active tuberculosis necessitates his complete abstention from labour, the man is pensionable. In so far as heart disease prohibits him from undue exertion, he is pensionable. But in each case the pension is given for the loss or lessening of one of the normal human abilities, and not for the disabling condition which causes such loss or lessening.

A pension is not a reward for service; it is not a bonus; and it is not a charity. It has nothing to do with the hardships or sufferings that a man may have undergone, and it is not intended to make up for the economic loss that has been suffered. It is paid as a compensation for lessened earning power resulting from the loss or lessening of a normal ability.

It will be appreciated that individuals will show infinitely varied reactions to the same disability. It is therefore impossible to judge the correct percentage of pension from the consideration of a single case. To arrive at a correct percentage for any specific disablement it has been necessary to draw upon past experience of the economic reactions of men who have suffered from it, and to determine the percentage by a consideration of all the available knowledge and in consultation with all available expert opinion. Of a half a dozen people who suffer from an exactly similar physical defect some will carry on quite cheerfully, will refuse to entertain any sense or feeling of hardship because of it, will refuse to be downcast by it, and will succeed very largely in overcoming its effect. Others will carry on in spite of it, perhaps with some grumbling and depression, and will live out a useful if handicapped life. One of the six may give up entirely. To him it will be the final straw breaking the weakly camel's back. Remember, however, that in all these instances the physical condition remains the same.

As far as the physical condition and the resultant disability vary, pensions can be and are varied. So far as the disabled soldier varies from his fellow in his mental make-up no attempt has been made and no attempt should, I submit, be made to accommodate pensions to these psychological differences.

An experience with the Pensions Board suggests, speaking very generally, that in the majority of instances the man who makes the loudest outcry about his pension has had the least service. One case which I remember very clearly was that of a man who served for five weeks in camp and was inoculated. He de-

veloped a most peculiar paralysis of the left hand. It was an entirely new form of paralysis; it was not in any book; it did not answer to any of the usual tests; it did not follow the course of any of the known nerves. That man, when he was discharged, said that he was treated unjustly by the Board of Pensions Commissioners. He urged his claims in season and out of season. He persuaded many people that he had been unfairly dealt with. He has letters from Ministers of the Gospel and from Members of Parliament. Lengthy articles were printed in the newspapers of the town in which he lives in which his treatment was stated to have been terribly unfair. His case has been discussed by pretty nearly everybody in his neighbourhood. Finally when he brought an action against a medical officer for an alleged injury during a re-examination, the court of inquiry found that he had lied throughout and was a malingerer of the most extreme type. So that it is quite clear that no individual case can be cited to prove or disprove the fairness of a pension. A wide experience, a broad knowledge, and a thorough grasp of the scientific principles upon which the whole Canadian Pensions Law is based is a primary requisite.

The next point to be emphasized is that it is obvious that in the estimation of disabilities in any pensions system, the same standard and same scale must be used in every case. There must be no variations in these. They must be applicable to all soldiers. The soldiers have all undergone, actually or potentially, the same hardships, dangers and exposures; their resulting disabilities must be judged by the same measure.

The only common ground upon which all Canadian soldiers officially stood at enlistment was that they had healthy bodies and minds. In so far as they succeeded in enlisting without healthy bodies and minds, the medical profession is at fault. All who examined men for the Army know that that work was very difficult and that mistakes were made. But when a certificate to the effect that a man was fit for service was signed, it was officially stated that the man had a healthy body and mind.

This then is the standard against which disabilities are estimated on discharge. Let us call it, for the sake of a phrase, "the normal human machine." It has been selected because it is the factor that qualified the man for service. It is the only common ground on which he and his comrades stood. The scale is the lowest common denominator of employment—the only employment common to all men with normal bodies and minds—the unskilled labour market.

The unskilled labour market does not mean arduous manual labour, though that is its commonly accepted interpretation. Unskilled people are employed in every business. No man who started a business, but started it unskilled. No man ever changed from one kind of employment to another kind of employment without having to take up an unskilled position in the new job. A man with average aptitude and intelligence can learn any business, if he wants to. Consider what women have done in the war. Factories and munition plants, farms and mercantile concerns, busses, trams, elevators,—is there any form of work, speaking generally, that women have not undertaken? And would one say that they were

skilled when they undertook it? It seems to me not unfair to say that the disabled soldier occupies a position somewhat analogous to that occupied three or four years ago by these women. That is what is meant when the expression, "unskilled labour," is used.

The scale is the restriction in the employability of the disabled human machine, because the effect of any disability, the effect of any loss or lessening of a normal ability, is to restrict the field of employment. For example, a man who has a difficulty in walking cannot be a postman. A man who has a defective vision cannot get employment on a railway. Similarly if one took other disabilities into consideration, one would realize that the essential effect of each disability is to restrict the general field of employability. The amount of this restriction, the extent of the lessened employability, is the measuring rod by which the disability is measured.

In the evaluation of any disability estimated against the standard of the normal untrained human machine, and measured by the scale of restricted employability, one meets with a two-fold problem: First, the medical problem, and second, the economic problem. The medical decision with regard to the degree of capacity of the man as a whole may be very materially influenced by the man's mental condition. It is sometimes not a question of how much he can do, as it is a question of how much he wants to do; and therefore the difficulty of arriving at a just decision on this question is often very great.

Essentially this lessening of normal capacity must be expressed in relation to normal fitness, or complete unfitness. It bears a fractional relationship to one or the other. It is immaterial which is chosen. A man may be said to be able to do half of a normal man's work, or to be able to do twice as much as the man who cannot do anything. In either case the relationship is expressed in arithmetical terms. That is the only way it can be expressed. The degree of incapacity, or of remaining capacity, must be stated as a fractional relation to a normal. The normal that is used is the untrained man in ordinary health, and degrees of physical incapacity are expressed as being one-quarter, one-half, three-quarters and so on, of this normal.

So much for the incapacity of the man as a whole. Now to consider the evaluation of lessened ability of a part. First of all what is the actual physical handicap resulting from, for example, the loss of a hand? An ordinary medical education provides one with no information by which such a question can be answered. It is a problem one needs a special training to solve. It demands a knowledge of the relation in terms of physical capacity between the man with four sound limbs and the man with only three; a knowledge not usually taught in medical schools and not ordinarily possessed by doctors.

Its solution has been reached largely by a study of the employability of thousands of men who have suffered from this disablement. This study discloses those facts upon which only can the estimation of the remaining degree of physical capacity be made. The conclusions have been reached by a thorough examination into the whole matter. Without this knowledge or without a thorough study of the

subject it is obvious that no sound or scientific opinion regarding such a relationship can be expressed. The uninformed decision may be that the disabled man has lost a quarter, or a half, or two-thirds, of the normal amount of physical capacity, but the answer must of necessity be a piece of pure guess-work.

It will be appreciated that the position of the doctor in regard to the pensions problem is not related to the money value of the pension at all. He has to do only with the degree of incapacity. From his standpoint the money value of a disability is not the point at issue. It does not matter to him if a total disability is rated at $60 or $600 or $6,000 a week, or a month, or a year. The crux of the question is, what degree of disability has the disabled man? What is the relation between his lessened ability and the normal? This can be expressed most clearly in arithmetical language. One can say that one disabled man is able to do only one-half of a normal man's work, that another has only one-third of the normal strength of grip, or that a third has only a quarter of the normal ability to see, and so on.

The pensioner comes to the doctor and says, "Look at my injured arm (or whatever it may be). Do you know that they are only giving me $10 a month?" Obviously that is a very natural way for him to think, but he is introducing not only the medical, but the economic question at the same time. It is necessary to know what percentage of disability $10 a month means. It is necessary to know what is the percentage value of the total loss of the affected part and what fraction of this the $10 a month represents. It is necessary to realize what amount of money is given to a man who is unable to contribute at all to his own support, and so on. All these things must be known before one can agree or disagree with the man's complaint. In other words as soon as a sum of money is mentioned the economic question is introduced and the economic question is not a question for the medical man. It is a question for the economist.

By and with the advice of the economist, the Government of Canada has said that a man who is unemployable, who has what we know as a total disability, shall be awarded $50 a month, or $600 a year. The man unable to contribute to his own support is paid that amount. The man who is able to contribute in part to his own support is given a part of that sum. If he is employable only to half the normal extent, he will get $25 a month; if his employability is only one-fifth, he will get $40 a month, and similarly through the 20 classes of pension that have been established, each of which represents a degree of restricted employability, resulting from a disability.

The work of the medical branch of the Pensions Board is to put the disability in each individual case into that class into which it falls in its relation to other disabilities. To consider the question from the money value is, for every doctor, unquestionably putting the cart before the horse. Because, as has been shown, the scientific medical problem is the degree of the loss of normal functional capacity. The effect of that loss on employability is an economic problem superimposed upon this.

In order to put these disabilities, whatever may have been the disabling condition from which they have resulted, into their proper relationship, and to main-

tain consistency in these relationships, the Pensions Board has constructed a Table of Disabilities. In its construction they have had the assistance of all the expert opinion of which they could avail themselves, both medical and economic. This expert opinion was based partly upon special practical experience and partly upon the study of the published conclusions of many men in many lands. It consists essentially in an attempt to reduce to figures the degree of economic handicap resulting from many disabilities.

As an example, let us take difficulty in walking, which one may take to be the disability that results from loss of or damage to the legs. The man who has lost both his legs above the knee gets a total disability pension because there is practically nothing that that man can do without special training, and as special training is a post-discharge activity, it must not be taken into account. If he has lost both his legs below the knee, he is employable. There are certain things he can do, and he gets an 80% pension. If he has lost one leg below the knee he gets a 40% pension; if he has ankylosis of the ankle, he gets a 20% pension; and if he has some condition that produces a difficulty in walking of a smaller degree than that caused by an ankylosis of the ankle, he gets less than 20%. This is the way in which the relationships in the table have been worked out.

The ideal which the Medical Branch of the Pensions Board has set before it is to construct a detailed table of pensionability for every disability in each of its degrees. To do so is a task of enormous magnitude. Many of the facts upon which such a complete table must be based are now being laboriously acquired in Canada and elsewhere. Special cases are constantly presenting themselves for solution. They are fully discussed; expert opinion is asked for regarding them; they become precedents, and are incorporated in this table that is being built up. For some conditions, as for example pulmonary tuberculosis, detailed tables have already been elaborated. This table was constructed at a meeting of a number of experts on tuberculosis from all over Canada. It was submitted to a good many other men in Canada and elsewhere, before it took its original shape. It has since been modified to meet more accurately than it did before the actual situation. One may say that what is being done to-day is to evaluate each disability as accurately as our present day knowledge makes possible.

Certain disablements are rated according to the standard and according to the scale as rendering a man unemployable. The next thing one hears is that he who suffers from one of them is hard at work and earning a good salary. If such a case is analyzed, it will be found either that one was not dealing with the untrained human machine, the only common standard, and that the man had specialized abilities by the application of which he is able to earn his money; or that he was the normal human machine, but that after his discharge he undertook a training, or in other words acquired specialized abilities which minimized the economic effect of his disability, and that as a result of training he is able to find a position at which he can make a good living.

The former variety is exemplified by a fictitious physician, a genius, who became during his war service totally disabled as the result of broken cardiac com-

pensation. He is necessarily prohibited from any and every physical exertion. Nevertheless he may sit in his consulting room, see his patients without injurious effort, and by the exercise of his mind he may earn an excellent income. His case displays the application of a pre-enlistment special ability. With only untrained abilities he could earn nothing. Of the latter the best example is the man who was blinded. Without post-discharge activity what could he do in the market for untrained labour? With post-discharge training, in other words with his St. Dunstan's education, there are a goodly number of employments open to him, and he can do well in the economic struggle.

May it be repeated that the business of arranging or attempting to arrange the relative amounts to be awarded for disabilities is a two-fold undertaking? Without a knowledge of economics, medical skill alone cannot determine it; without a knowledge of medicine, economic experience is insufficient.

Finally, the facts upon which a judgment is made must be recorded. The impression of the examiner in regard to the capacity of the individual patient is not enough. These impressions must be crystallized into words, and these words written down, because they are the legal justification for the expenditure of public money—of your money and mine; because they must be available for reference in the case of complaint or re-examination; and because they become a part of official Government documents. And in these records the extremely important factor is that description of the disabling condition which most completely conveys the *quantitative* estimate of the disability.

To summarize, of all the measures of rehabilitation, pensions in the last analysis are the least important. They are in a degree antagonistic to the other activities. The others are calculated to restore to the disabled man that feeling of independence and self-reliance without which he can never be a happy citizen. A pension tends to inhibit the development of this idea.

Any system of pensions is immensely liable to abuse. In this connection it might not be uninteresting to point out that before the United States came into the war, their annual pensions bill was approximately $300,000,000. They were paying a certain amount to the dependents of men who had served in the war of 1812; and they were paying the balance to men or to the dependents of men who had fought in the Civil War of the '60's. This sum, compared with the numbers of the men in the armies referred to, suggests that the pensions system has not been carried out on a purely scientific basis. The great danger is the danger of sentimentalism. The attempt to provide a man with his fair pension is surely a scientific problem. The entrance of sentiment into it is bound to stultify the scientific effort. And the effect of sentimentalism is sure to deter rather than to encourage the effort of the pensioner.

The principles upon which the legislation is based are plain. The standard is an equitable standard. The scale is the most generous scale, because there is no market in which the disability produces more economic hardship than the market for untrained labor.

In the evaluation there are two equally important factors—the medical and

the economic. The attitude of the medical profession is an extraordinarily important element. The pensioner, the disabled soldier, consults his doctor. His doctor says: "Oh, yes, you are much worse off than $7.50 a month." The man has his own idea strongly confirmed and he comes back upon the Government with a greater effort than ever to obtain more money.

The doctor has not perhaps realized that $7.50 per month represents a 15% pension; that the man has been estimated to be one-seventh disabled; that the money he is receiving represents one-seventh of that amount which the people of this country have determined to be the amount to be paid to a man who by reason of a war-engendered disability is unable to contribute at all to his own support; and that in the estimation of his disability the conclusion has been reached by the application of such scientific knowledge as is available.

I think I am perfectly safe in saying that the pensions legislation in Canada deserves the support of the medical profession; that it is unquestionably the fairest and broadest and, from the economic standpoint, the soundest pensions legislation in existence. In its scientific application only is there safety from a danger that is unquestionably grave and perhaps imminent.

On the Grounds of "Spencerwood," Quebec, Canadian Medical Association Convention, June 25, 1919

SOME OBSERVATIONS CONCERNING THE ETIOLOGY AND OPERATIVE TREATMENT OF ACQUIRED OBLIQUE INGUINAL HERNIA*

By E. R. Secord, M.D., F.A.C.S., Brantford, Canada.

If a survey were to be made of the work done in any of our modern surgical clinics it is probable that the operative treatment of hernia in one form or another, would rank second only to appendicitis and its complications, as the reason for the largest number of operations. Similarly a perusal of the surgical literature of the past twenty years would reveal a large proportion of articles dealing with the technical details of various operations for the cure of rupture. During the same period there is an astonishing paucity of articles referring in any way to the etiology of hernia. For instance, during the last five years, the International Abstract of Surgery lists only one reference to this subject.

Is this condition due to a unanimity on the part of surgeons as to the cause of rupture, especially of the acquired form, or is it due to a feeling that the question of etiology is of ultra-scientific importance only, and has no bearing on the practical question of cure?

Referring more particularly to the subject matter of this communication, the more generally accepted theories as to the etiology of acquired oblique inguinal hernia may be classed under three heads, viz:—

(1) The saccular theory, as propounded by Russell in 1899 and subsequently. This idea has, perhaps, the largest number of adherents.

(2) Deficient musculature surrounding and supporting the inguinal canal.

(3) The fascial theory advanced especially by Moschcowitz.

A brief statement of these theories may be of interest.

(1) The Saccular theory. Hamilton Russell states that acquired oblique inguinal hernia in the young subject has probably no existence in fact. He maintains that, with the possible exception of some cases of direct inguinal hernia, all hernias, inguinal or femoral, are the result of the presence of congenitally formed sacs, and are not acquired. He bases this opinion on results of post-mortem examination, examination of sacs removed at operation, results of operation in which removal of the sac constituted the entire procedure, and the accidental discovery during operation of preformed peritoneal diverticula, which had never been occupied by a hernia.

(2) The theory of deficient musculature has been enlarged upon by various writers. Suffice it to say that "imperfect muscular development of the inguinal region" sums up the argument. As Gasser puts it, "The wider the inguinal canal is, and the straighter its course, the more readily will a hernia develop in this region." Other factors, such as absorption of fat, etc., may play a part.

---

*Presented before the Ontario Medical Association, Toronto, May, 1915.

(3) The fascial theory. According to Moschcowitz "The transversalis fascia is the sole important structure needed to retain the viscera within the abdomen. Certain weak areas occur in this fascia where it is perforated by the spermatic vessels. Through this weak area, under certain circumstances, a peritoneal dimple is pushed out. Soon a portion of the omentum finds lodgment within this dimple; the sac becomes larger, more abdominal contents enter the sac, and a fully developed hernia results."

Considering these theories it is apparent that the question may be briefly put as follows, viz:—Does the sac produce the hernia?—this being the obvious state of affairs under the saccular theory—or does the hernia produce the sac?, which is the equally obvious condition under either of the other explanations, *i.e.*, "A peritoneal dimple is pushed out."

If one accepts the saccular theory of Russell, then, one must also accept his statement that acquired oblique inguinal hernia has no existence in fact. If, on the other hand, either of the other ideas be approved, then one may admit that the predisposing cause of a hernia is a constitutional defect, but may also believe that the occurrence or otherwise of a rupture may depend in greater or lesser degree on certain other determining factors. This argument is not merely of academic importance, but of very practical interest in relation to its bearing on the attitude of accident insurance companies, sick benefit societies, and workmen's compensation boards, to claims for benefits following the appearance of a hernia.

Regardless of personal opinions it must be conceded that, whichever theory is correct, it must be very frequently, if not usually, bilateral in its action. If a persistent "processus vaginalis" is present on one side, it is natural to suppose that it may be present on the other. If the musculature is weak, or the fascial opening for the escape of the spermatic vessels is unduly large on one side, it probably is the same on the other.

Consequently we must consider what happens when we repair a one-sided hernia. Up to this time the hernial opening has acted more or less like a safety valve to permit of abdominal strain without increasing greatly the intra-abdominal pressure. When now the rupture is radically cured this safety-valve action is shut off, and any sudden increase in intra-abdominal pressure must now exert its force on the other hernial orifices, and especially on the corresponding orifice on the other side, because we must presume that it is already, as it were, in a receptive state to permit of a hernial protrusion. Thus a rupture is gradually developed on the other side, and we have the more or less common history from our patients, that the side we operated on is fine, but that they now have a hernia on the other side. Just what proportion of cases this occurs in, I am not prepared to state, but probably in at least twenty-five per cent.

With the idea of preventing this contingency, and bearing in mind the bilateral character of the predisposing factors, I have, during the last four years, when operating on a unilateral hernia, also made a prophylactic operation on the other side, splitting the external oblique, suturing the conjoint tendon to the shelving edge of Poupart's ligament, transplanting the cord, and resuturing the external oblique. I

have not undertaken this modification in strangulated or otherwise complicated cases, nor in very young nor very old subjects, nor in certain instances where I was unable to obtain permission, but it has been carried out in some forty-six operations. It is, of course, to be understood that no case is included where there was any suspicion of a bilateral hernia.

Experience has thus been gained by the dissection of the inguinal canal, presumably normal, except for the possible presence of some factor predisposing the individual to the occurrence of rupture, and this experience has been instructive in several ways.

Firstly, there has as yet been no instance where a hernia has developed on this second side.

Secondly, there has never been observed any long narrow sac which might be taken for a persistent processus vaginalis, neither has there been any visible remains of such process in the shape of a fibrous cord, or other demonstrable structure.

Thirdly, in practically every case it can be demonstrated that a potential hernia already exists in the presence of a definite dimpling, or more accurately speaking, peritoneal projection closely resembling the tip of a glove finger, definitely protruding beyond the internal abdominal ring. It may protrude very slightly, or in different cases in varying distances until it almost reaches the external ring, having done which it would of course become recognizable and classed as a double hernia. This peritoneal projection is, in its earlier stages, always glove-finger shaped, always outside and slightly above the cord, from which it may easily be brushed, and is always very thin, consisting apparently only of peritoneum. I am well aware that, from an anatomical standpoint "when the sac of an olique inguinal hernia passes through the internal or deep abdominal ring, the infundibuliform process of the transversalis fascia forms one of its coverings," but I repeat the observation that from a surgical standpoint the projection I describe appears to consist of peritoneum and of peritoneum only. It is so thin as to afford practically no bite for a needle, and if of sufficient extent as to open, which I usually do, is best closed by ligating en masse on the introduced finger. Moreover in no case has there been any evidence of a fibrous band or cord at the tip of this projection, which might suggest the possibility that it was an unclosed upper end of a processus vaginalis.

That the transversalis fascia per se, can have any influence in preventing oblique inguinal hernia would appear to be probable, since it is almost impossible of demonstration as an independent structure outside the angle of the internal abdominal ring occupied by the cord, becoming a very thin layer of areolar tissue on the abdominal aspect of the transversalis. It would also appear that, with due deference to the value of Moschcowitz' opinion, based as it is on very large experience, if the point of weakness was the opening for the exit of the spermatic artery, is not perforated by any vessels of imp of the cord, and not invariably outside the the hernia would occur into the structureom. Moreover the transversalis fascia is much firmer where it forms the floor of Hesselbach's triangle, where in addition it cord and demonstrably separable therefrortance; yet direct inguinal hernia does

occur in a very definite number of cases, which facts would, at least, seem to weaken Moschcowitz' theory. Moreover, may I ask, how many of you, in doing an ordinary "split-muscle" incision for appendectomy, find the transversalis fascia of enough importance to warrant separate suture, or indeed to be frequently recognizable as a distinct entity.

Some light may also be shed on the surgical importance of the transversalis fascia by a consideration of the anatomical description of the deep epigastric artery. It arises from the external iliac, descends towards Poupart's ligament, then ascends obliquely along the inner margin of the internal abdominal ring, lying between the transversalis fascia and the peritoneum. In other words it is, in this situation, covered by the fascia. Yet how often, when doing a radical cure, lifting up the cord to strip off the sac, do you see the deep epigastric artery and veins, revealed in all their anatomical beauty, covered by nothing more tangible than a very thin layer of loose areolar tissue.

Certain other anatomical points are worthy of attention. The transversalis muscle arises from the outer third of Poupart's ligament, the internal oblique from its outer half. The internal abdominal ring is bounded above and externally by the arched fibres of the transversalis below, and internally by the deep epigastric vessels. It varies in size in different individuals, and is much larger in the male than in the female. It is obvious that the size of the ring is merely another description of the extent of space between the epigastric vessels and the transversalis fibres, and since the attachment of the latter occupies only the outer third of Poupart's ligament, while that of the internal oblique occupies the outer half, it is further obvious that the internal oblique must cover over the weak area we call the internal ring, and incidentally afford some measure of support to it.

From these various observations I would therefore conclude that the etiology of acquired oblique inguinal hernia depends on several factors, the most important of which, from a predisposing standpoint, is the arrangement of the muscles protecting the internal abdominal ring. If these muscle fibres are so distributed,—that is, if the arched fibres of the transversalis are somewhat closely approximated to the epigastric vessels, and a well developed internal oblique covers the ring anteriorly, as to effectually protect this potential opening during strain, then hernia will not occur. If, on the other hand, they are not so distributed rupture may occur, if the determining factors such as sudden strain of an unusual character, degree, frequency, or in an unusual position of the body, should become operative. Under these circumstances bronchitis, asthma, prostatic, strictural or phimotic obstruction may be considered as determining causes.

From the operative standpoint I would desire to call attention to the value of a prophylactic operation along the lines mentioned, in those cases where we have reason to presume that a predisposing cause exists, that is in those individuals who have already developed a rupture on one side.

NOTES ON REHABILITATION OF CARDIAC CASES*

C. S. McVicar, M.B., Lt.-Col. C.A.M.C.

Late Officer in charge of Medical Service No. 16, Can. Gen. Hosp., Orpington, England.

Of the first 350,000 men discharged from the British Army, 10% were for cardiac diseases, 11% for chest complaints and tuberculosis.[1]

In an analysis of 387 cases invalided from the service between May and November, Lewis found 26% to have structural heart disease, and 74% were classed as Effort Syndrome.[2]

Cases of invalidism from cardio-vascular disease may be classified as:—

(a) Structural disease—

Aortic regurgitation.
Mitral stenosis.
Enlargement.

(b) Effort Syndrome, or Soldiers' Heart.

Nearly all soldiers are between 20 and 40 years of age. Because of the relative youth of soldiers we are seldom called upon to deal with vascular disease. Aneurysm is rare—sclerotic change in the heart is rare.

"The only irregularities of the heart's action which are at all common in soldiers are without significance; those rare irregularities which are of diagnostic and prognostic value are usually accompanied by other clear signs of structural disease." (Lewis.)

STRUCTURAL DISEASE—ETIOLOGY

In an analysis of 101 cases of structural heart disease Lewis[1] found a history of rheumatic fever in 61%.

Fahr[3] in an examination of 55,000 recruits in Texas found 60 cases of valvular disease. He is of the opinion that most of the cases are due to polyarthritis. Other important infections are pneumonia and influenza.

In 157 cases of structural heart disease in men of military age Warfield[4] excluded syphilis as a cause.

Lewis[5] found a higher incidence of venereal disease in 100 cases of gunshot wounds used as controls, than in 100 cases of heart disease.

It is probable that syphilis plays a very small part in the production of heart disease in soldiers under 40.

---

*An address [illegible] before the Ontario Medical Association, [illegible].

DIAGNOSIS

It must be emphasized that in examining men for national service, whether on entering the army or on leaving it—we must be prepared to detect structural disease, not only when signs and symptoms of cardiac failure are present, but frequently in the absence of such signs.

A history of infection should be carefully sought by questioning and by examination of the man's medical documents. A history of rheumatic fever, whether after or before service, demands a searching investigation and among other infections, suppurating wounds, especially those of long duration, are important.

The diagnosis of aortic regurgitation depends upon the presence of—

A water hammer pulse.

A diostolic murmur along the left sternal margin.

The diagnosis of mitral stenosis depends upon the demonstration of a *presystolic* murmur. The heart rate is raised by exercise and the patient is examined recumbent.

I have found the use of amyl nitrite inhalations after the method of Morison` of definite value in detecting the presystolic murmur of mitral stenosis. With the patient recumbent, the stethoscope is applied just within the point of maximal impulse, the patient then inhales the vapour of a crushed 5 minum perle of amyl nitrite. In about 20 seconds the heart rate is increased about 25% and a suspected presystolic murmur takes on a distinct crescendo character.

The diagnosis of cardiac enlargement is made by palpation of the lower and outermost limit of the maximal impulse, providing the heart is not displaced.

Enlargement is diagnosed when the left border, as demonstrated in this manner, is more than 4½ in. from the mid sternal line.

In many instances the thorax of the soldier turns rather abruptly backwards at this point and percussion inwards along the 5th space encounters heart dulness before the plane of the left cardiac border is reached.

As a matter of routine every case of suspected cardiac enlargement should be screened—or better still, have an ortho-dioscopic tracing made.

EFFORT SYNDROME—Neuro Circulatory Asthenia.

The irritable heart of soldiers.

Disordered action of the heart.

This complaint was first elaborated by DaCosta with respect to the soldiers of the American Civil War. During this war cases have been found in all the armies, Central as well as Allied. It is common in civilian life.

In this group of cases there is no demonstrable structural lesion of the heart, but there are symptoms similar to those occurring in decompensation from structural disease.

The patient complains of fatigue, breathlessness, breast pain, palpitation and giddiness. The heart rate is unstable, showing marked variations from day to day

and on change of posture. Excessive sweating is common. Tremor is frequent. There is no cardiac enlargement. A high percentage are hypersensitive to stimulation of the sympathetic nervous system, *e.g.*, by adrenolin (Peabody)."

ETIOLOGY

1. Post Infectious.
   (a) Rheumatic.
   (b) Other infections, *e.g.*, influenza, trench fever.
2. Constitutional Inferiority.
   (a) Mental.
   (b) Physical.
3. Combinations of 1 and 2.

As distinguished from structural heart disease, Lewis found rheumatic fever as a probable exciting cause in 23% of effort syndrome cases, as compared to 61% in structural disease. In my opinion in the Salonika army, trench fever, malaria and dysentery marked the onset of symptoms in the majority of cases—in the order given. A very considerable number of these cases have been below par from birth, and have shown a lack of ambition, energy, aggressiveness and courage. In this respect they are strikingly analogous to men invalided for "shell-shock."

Another section has been drafted from sedentary occupations and differ from the class above in that their inferiority is wholly physical and has been acquired. In some, repeated illnesses in childhood have determined a choice of sedentary occupations. In others lack of physical development has been the result of a voluntary choice of such an occupation.

REHABILITATION

In returning a man to civil life there are three pertinent questions to be determined in order that his disability may be properly classified.

(1) Presence of structural disease.
(2) History of infection.
(3) Reaction to exercise.

All structural cardiac disease tends to be progressively disabling. If the infection continues the mechanical disability increases. If the lesion heals, the contraction of scar tissue increases the mechanical disability.

The occupation of the individual is restricted by the mere occurrence of structural disease—no matter what the exercise tolerance. Aortic regurgitation is a more serious initial disability than mitral stenosis. The latter is likely to be more rapidly progressive. Cases of structural disease should come up for re-examination at least every 12 months. As the years go by it becomes increasingly important to watch for signs of cardiac failure and fibrillation.

Because of the high incidence of rheumatic fever as a cause of both structural and functional cases, no case should be discharged the service until one is satis-

fied that no focal infection remains. Both at Orpington and in this military district I have seen all the symptoms of the effort syndrome disappear with proper dental care. The tonsils and accessory sinuses of the nose should be passed upon by a specialist as a routine before these cases are discharged.

During the war heart hospitals were established in the Imperial and Canadian services, where patients were subjected to graduated exercises. By means of such exercises men are sorted for physical work by testing them at physical work. The exercises are combined with treatment by suggestion. Roughly 50% of effort syndrome cases were returned to duty. Such a system of graded exercises is the only safeguard against the danger of a too quick return of men to work from hospitals where they have been treated for acute illness. Graded retraining enables the convalescent to regain tone. The practice is applicable to convalescents from all acute illnesses, and to civil as well as military patients.

The tolerance of exercise is measured by physical signs, *i.e.*, by the occurrence of a slow return of a raised pulse rate; by evidence of distress as shown by breathlessness, pallor or præcordial tenderness. As a test of fitness it has everything to commend it—as a measure of the degree of unfitness, it is suggestive only.

It must be accepted as a fact that no case of structural heart disease should be treated in hospital unless there are evidences of cardiac failure. It is equally well established that the morale of all military patients deteriorates during prolonged hospitalization. Every cardiac case, structural or functional, reaching this country has already been in hospital six months. Each case should be discharged as rapidly as his papers can be prepared, keeping in mind the necessity of ruling out focal infections. His exercise tolerance must be judged at discharge by a brief test and checked up on re-examination by the history of his tolerance in civil occupation. A test should be capable of routine employment. The reaction of a healthy man to any exercise employed as a routine will quickly become known to the medical officers who employ it. Subnormal reactions will similarly become stereotyped in the consciousness of an examiner. For this reason a single test is better than several, and a simple test better than an elaborate one.

I therefore use as a routine test the exercise of raising the hands above the head and touching the toes rapidly up to ten times. The pulse is counted before the exercise—immediately after and the time of its return to within 10 beats of the first reading is noted. Frequently the rate is slower after than before exercise. The physical signs are noted as indicated above.

Other tests have been suggested; one is to have your patients climb and descend a stairs of a given length in a given time. There are no stairs available in most examining rooms.

Another is to have your patient hop a given number of times on one foot. This test prohibits anyone else working in the same room at the same time, and frequently alarms the occupants of adjoining and especially of subjoining rooms.

When the examination is complete, including the test, a definite statement should be placed over the examiner's signature that, in his opinion, the patient is able to work full time, or a fraction of that time. Such a judgment must be ren-

dered with regard to the examiner's conception of the normal capacity for work of the individual on enlistment. This is because the term "fit" on enlistment does not imply absolute efficiency, but includes a class varying in degree of efficiency. To illustrate by an example, let us suppose that it includes men capable of doing a specific task from 80 to 100% efficiently. The 80% man on one hand should not receive a bonus for what he did not have, and on the other hand the 100% man is entitled to compensation for his impairment, even if it only lowers him to 90%.

I emphasize this point particularly with reference to that type of case classed under effort syndrome due to constitutional inferiority. To pension such men for a defect not acquired on service is to create a disability which is likely to interfere with their improvement, just as I believe that pensions for hysteria or malingering will tend to "fix" the habit of hysteria or malingering.

On the other hand, in the case of structural heart disease, I believe a man should be pensioned for his present disability without regard to his condition on enlistment, providing he has undergone a reasonable amount of service. It is poor economy to hasten the incidence of total disability by giving less than adequate pension.

LITERATURE

1. [illegible] August, 1918.
2. Lewis: The Soldier's Heart and the Effort Syndrome.
3. Lewis: The Soldier's Heart and the Effort Syndrome.
4. Lewis: The Soldier's Heart and the Effort Syndrome.
5. [illegible] J.A.M.A., Jan. 18th, 1919.
6. Wathen: J.A.M.A., Sept. 1st, 1917.
7. Lewis: The Soldier's Heart and the Effort Syndrome.
8. Mottram: B.M.J., April 20th, 1918.
9. Peabody, [illegible] J.A.M.A., Dec. 7th, 1918.

On the grounds, "Spencerwood," Quebec, Canadian Medical Association Convention, June 27, 1919.

DISEASES OF THE RESPIRATORY SYSTEM AS MEDICAL PROBLEMS IN REHABILITATION*

JABEZ H. ELLIOTT, M.B., LT.-COL. C.A.M.C.,
Consulting Physician, M.D. No. 2.

The diseases of the respiratory tract which represent the most serious problem for the future are tuberculosis and the group consisting of chronic bronchitis, emphysema and asthma. The pleurisies are a less serious problem and the cases requiring prolonged observation and after care are much less numerous.

Gas poisoning and gunshot wounds of the chest, though not classified under the heading of diseases, may perhaps be considered as a part of the problem. Fortunately this group will not prove as serious a question for us in the future as those first mentioned.

Bronchiectasis, though as serious as any, forms a very small percentage of the chronic respiratory diseases and is not considered a public health problem.

GAS POISONING

In a report made to this Association in 1916 on a series of about 100 cases of gas poisoning, Tovell and the author pointed out the frequent persistence of symptoms closely related to shell shock, while in other cases bronchitis persisted for over a year. These cases were exposed principally to chlorine, and we were able to report marked lessening or even complete absence of symptoms after a year had elapsed, and further experience has shown that our returned cases have in most instances gradually lost all symptoms. In a few, however, neuro-circulatory and neuro-respiratory symptoms have not entirely cleared, but nevertheless all show gradual lessening of their former disturbances. In some chronic bronchitis has persisted. The prevalent idea that gassing terminates in tuberculosis in a large number of cases is quite erroneous. It is now generally agreed that it is rare for tuberculosis to become activated by gas poisoning.

The statement of two years ago† holds to-day—"It is very gratifying to be able to state that the gas does not seem to have stirred up tuberculosis to any extent. It was feared that most of the cases would develop into tuberculosis, but very few have. They have many of the symptoms of early tuberculosis. They require rest and out-of-door treatment, but comparatively few of them have become tuberculous."

This has been our experience in Canada. The small number of cases which later developed active tuberculosis lead one to question whether effects of the gas

---

*Address delivered by invitation before the Ontario Medical Association, Toronto, May 5th, 1919.
†Elliott, Proceedings National Tuberculosis Association, 7th Annual Meeting, Ottawa, 1917, p. [illegible].

have had any etiologic significance, when we consider the prevalence of tuberculosis. The cases seem to be no more than might be developed in any group of men of the same age.

A few cases in whom albuminuria was reported have quite cleared, and those with functional bladder symptoms—increased frequency—have also become free from symptoms.

After one or two years have elapsed we have found that our gas poisoning cases generally fall into one of two classes. 1. Neuroses. 2. Chronic (non-tuberculous) respiratory disease.

1. *Neuroses.* These may be divided into three sub-classes: (a) neuro-circulatory, (b) neuro-respiratory, (c) neuro-digestive, though some show mixed symptoms. The circulatory functional sequelæ of gas poisoning are D. A. H. trachycardia and palpitation. The respiratory symptoms persisting are most frequently pain in the chest, often varying with the weather and increased or only present on exertion, and shortness of breath. Troublesome, at times, spasmodic cough with little sputum is sometimes seen, and in some nocturnal asthma, and in one case associated with night terrors. Functional digestive symptoms soon disappeared, but one man showed a marked intolerance for meat for full two years after his gassing (chlorine), and another had recurring attacks simulating enteritis.

Chronic Respiratory Diseases. The most frequent of these lesions, the result of gas poisoning, are chronic bronchitis emphysema, and some of these show definite asthmatic symptoms. Bronchiectasis has also resulted, doubtless from the damage done to the bronchi and aided by a degree of pulmonary fibrosis which has followed the purulent broncho-pneumonia or bronchiolitis, which was not infrequent after chlorine and mustard gas. The cases of bronchiectasis are, however, rare, while chronic bronchitis and emphysema we find not infrequently persisting after four years. Pulmonary tuberculosis is closely simulated in some of these men, who show persistent loss of weight, with occasional febrile periods. These temperature disturbances are at times associated with a definite acute bronchitis or a patch of broncho-pneumonia. The occurrence of blood-stained sputum, which is not rare, also raises the question of tubercle.

Gas poisoning may therefore be dismissed as a problem in reconstruction, and the cases which show persistent symptoms will usually be treated either with the neuroses or as chronic non tuberculous respiratory disease.

GUNSHOT WOUNDS OF THE CHEST

Comparatively few of this group require prolonged treatment or special consideration after healing. The presence of a foreign body in the lung rarely interferes with a return to former occupation. Men with shrapnel ball, rifle or machine gun bullet, or shell fragments of varying size in the parenchyma of the lung are carrying on as office men, labourers, stone masons, brick layers and carpenters, with no discomfort from the presence of the foreign body.

The complications which have ensued have at times been sufficient to require prolonged treatment, for example empyema and serous effusion, with extensive col-

lapse of lung. These can be considered with the pleurisies, as the problem is the same. Those with considerable loss of the bony or cartilaginous wall of the chest will also require the same consideration as the empyemas, where there has been extensive rib resection.

THE PLEURISIES

Serous Pleurisy. For the past decade or longer we have generally believed that the serous pleurisy which on culture was sterile, was to be considered as tuberculous. Some of our army physicians after studying a large series of these cases with careful laboratory technique, combined with Roentgenograms of the chest, are inclined to question the acceptance of this dictum. In our experience in this military district a number of men returned from overseas with a history of pleurisy have shown definite tubercle of the lung, and the number is quite sufficient to warrant us in studying every effusion most carefully. Those with prolonged debility and persistent low weight should be treated as tuberculous (incipient tubercle), while those who rapidly recover may in the absence of definite X-Ray findings be treated as non-tuberculous, or perhaps as suspect, requiring periodic subsequent examinations, as in the case of arrested or cured tubercle of the lung. The extent of movement of the diaphragm and lower border of the lung should be carefully recorded on discharge and this compared with the new findings every six or twelve months. Those who have overcome the systemic disturbance but show at discharge much collapse of lung and chest wall, with thickened pleura and high adherent diaphragm, require review every six months, should be treated as the tuberculous and be placed in suitable environment, especially as regards occupation. They require the same after care as the arrested or cured tubercle of the lung, with the exception that constant endeavour should be made to develop respiratory expansion, either by special exercises, or by suitable occupation which will ensure chest development.

Purulent Pleurisy. It has been most gratifying to observe that a large number of cases of empyema have in the course of one or two years almost completely recovered respiratory function. Some with large purulent effusions treated by resection have shown to our surprise complete functional recovery, neither percussion, auscultation nor fluoroscopic examination revealing evidence of thickened pleura nor limitation of excursion of the diaphragm or of the lower border of the lung. Further, a large proportion of those who have considerable limitation of movement of the diaphragm, with basal adhesions, are able to return to former occupations with little or no discomfort. And this is true both of those complicating pneumonia and those due to infection following G. S. W. of the chest.

We have seen six cases of tuberculous empyema; these are to be treated by repeated aspiration and air or oxygen replacement; never by resection and drainage. The prognosis is good unless complicated by tubercle of the lung. Prolonged care and after treatment is necessary as in tubercle of the lung.

CHRONIC BRONCHITIS AND EMPHYSEMA

This group has long been recognized as frequent in soldiers. Associated with asthma it forms a serious problem in our after care of the discharged men. A large proportion of the men suffering from bronchitis in England and France rapidly improve on their return to Canada, and many lose their symptoms completely. In others the improvement is slight and each winter sees them laid off work for weeks at a time with exacerbations of their cough with increase in sputum.

This group, and including asthma and bronchiectasis, are influenced by climatic conditions, so that some who are fit for but little work, say in Ontario, find much relief from symptoms, and a great increase in working capacity by residence in the Canadian West. Others are relieved when in the south-western states, if careful to keep some distance inland, and better at an elevation. Studies in protein sensitization and the use of vaccine have thus far given no brilliant results in men at the age of those with whom we are dealing, except in an almost negligible percentage.

Here, as with tubercle of the lung, the vocational officer must work with the medical officer in finding for the man suitable employment in a suitable environment. Irritating dusts and gases are to be avoided, as are occupations requiring over-heated workrooms or shops with rapid variations in temperature and constant draughts, out-of-door work necessitating exposure to inclement weather, those which mean wet feet or heavy perspiration, with opportunity for chilling, while the asthmatic must avoid heavy physical exertion, and we cannot dismiss a case by saying "you must live in the west." He perhaps has a large family to consider and removal west is beyond his means. Further, he knows nothing about the possibility of employment there. With our hospitals in every province, it should be possible to transfer a man from one to the other, especially in the case of asthma and of bronchitis of the asthmatic type, that he may find if change gives any relief. Then the vocational officer may help him with advice, the employment commission secure him the occupation desirable, and other agencies arrange for his family to join him where he can work in relative comfort with a small disability, rather than remain where he is with a large pensionable disability for his life. I cannot help but feel that the problem of this group of cases is just as heavy as the tuberculous, though not involving any public health question. I feel that a large proportion of our tuberculous may either have lost out or be comparatively well within five years, while the bronchitic and asthmatic may go on for 20 to 40 years, with gradually lessening working and earning capacity and require a high pension over this long period.

Bronchiectasis. We have comparatively few such cases; perhaps twenty have passed through our chest clinics during the past year. The damage to the bronchial tree from influenza and gas poisoning will probably result in a larger number developing in the course of a few years if these cases are subject to recurring colds or subacute respiratory infections. Their problem is practically that of chronic bronchitis, except in the small percentage with fetid sputum, and these should be considered individually—each being a problem, not to be dealt with in a class.

TUBERCLE OF THE LUNG

When tubercle of the lung is diagnosed in a soldier returned from overseas, or developing in Canada, the patient is discharged to the Department of Soldiers' Civil Re-establishment for sanatorium treatment. Sanatoria have been provided in every province, that a man may be treated near his own home. He is cared for in the sanatorium until he is considered fit for work, or until he has secured a maximum of improvement, or until he is considered able to carry on with his further treatment satisfactorily at home under proper supervision. The latter course demands that home environment and facilities are such that he may continue along lines of sanatorium routine.

It is desirable that the curable case remain at the sanatorium until cured or the disease is arrested, when he should be able to return to his home under supervision and gradually return to his former occupation, or when this is unsuitable, to some new work.

If incurable he may remain indefinitely at the sanatorium, or be attached to its industrial department or farm colony if fit for light work, particularly if a man without a home. Many of the incurable cases may safely return home after a prolonged course of training, and some of these will be able to do a little light work with benefit if afebrile and the disease at an apparent standstill. But unless properly supervised we shall have a disappointing number of relapses. "Many of our patients leaving us with a thoroughly arrested disease relapse within one or two years; and in the majority of these cases we know that the relapse could have been avoided with proper care. We know that carelessness is the chief cause of the failure of our seemingly good cases, and that we must do away with this carelessness before we can get our best results. Returning home after a long period of sanatorium treatment, most patients will be careful for about six weeks, a moderate number for six months, but only an occasional individual for six years. This tendency to carelessness increases in direct ratio with the length of time the patient has been away from sanatorium influence (or supervision), and is complicated—indeed, is often aided and abetted—by the attitude of the family and the neighbours. This attitude is usually founded on an entire ignorance of the subject or of the needs of the patient and a sublime confidence in their ability to determine what is best for the patient under any and all conditions.

We often speak of our institutions as training schools, claiming that the educational feature of their work is the most valuable of their functions. This is true, but it is also true that in order to secure permanent results it is fully as necessary to educate the family as the patient, and so far we have made but little effort to do this." (Lyman.)

To make our results as permanent as possible we must follow the patient to his home and establish a supervision which will aid in (1) The prevention of relapse. (2) The deletion of symptoms of relapse before serious damage is done. (3) The establishment of sanitary measures in the home and lessen the possibility of contact infection. This would include education of the family. (4) The super-

vision of the members of the family, and especially the children, who are to be treated as contacts. For this we require the services of a nurse trained in social work, and the services of skilled physicians. In the larger centres special chest clinics are available, others could readily be established where needed, and in rural communities the services of the local physician or a travelling special physician could be arranged for.

The visiting nurse should begin her work while the patient is still at the sanatorium, where she meets him and secures his interest and co-operation. With a visit to the family before his return she can begin their education in co-operative measures, so that when he reaches his family they will have the facilities for his after care and will be ready to help him by having a proper attitude toward him and his practice of those measures essential to his further progress. The nurse should not only have knowledge of sanatorium routine and prophylaxis, but must have a training in social service work as related to public health, and above all must have tact, patience and resourcefulness to deal with difficult situations.

The wise provision of the Board of Pension Commissioners, that pensioners with tuberculosis be re-examined every six months, should be continued in each case until the disease can be classified apparently cured, when the interval can be extended to one year. Provision for more frequent examination and advice is necessary as well, for those who are showing any signs of activity while carrying on at home.

EMPLOYMENT

The finding of a suitable occupation for a tuberculous patient whose disease is arrested is one of the most difficult problems in rehabilitation. There are few out-door jobs suitable for the tuberculous. There are many suitable in-door jobs.

Tuberculous patients are told again and again that they should get suitable out-of-doors employment. As to this I am quite in accord with the comment of Dr. Jay Perkins.*

"I have seen patients try to carry out this advice in different ways, but have rarely seen a success. I have seen them try going onto a small farm; but farming, even on a small scale, means hard work, and they are not able to do it. Chicken farming I heard considerable about at one time and have seen it tried, but it was unsatisfactory. I have seen these men go on to laundry and grocery wagons, but between the stair climbing, exposure to storms and cold, and alternating between warm rooms and out-of-doors, it was very unsuitable. For quite a number of years I have advised a return to the old occupation, unless it was very unsuitable or something better was in sight for the individual. Taking up a new work means a greater mental strain and lower wages, which add to the mental strain. The old work, with its familiarity and better pay, make life easier and home conditions better. If the mind is easy, home conditions good, and a proper life carried on outside of work hours, the patients can frequently stand considerable work, if

* *American Review of Tuberculosis*, Vol. , No. , Page .

they do not work too many hours in succession. We now hear a good deal about establishing farming colonies. The Red Triangle is trying this method in England. I have an open mind on the subject; but I know what farm life is, and unless some new way can be found for carrying on farm work I do not see how a satisfactory living can be made by these men on a farm without subjecting them to greater strain than they can bear.

In the planting and harvesting season, long hard days are necessary if profit is to come from the occupation, and men will not be satisfied at any occupation which does not yield a profit. Here also is the element that the work is new, and unusual as work. Also, to be profitable, farming must be carried on scientifically, and scientific farming means study and practice, or long practice under a good farmer. There is a great difference between owning a large farm and hiring the hard work done, as so many of our business men do without regard to the profit and loss account, and having a small garden to raise a few vegetables for the table, and going into it as a business and means of livelihood. I can but be very sceptical as to the success of this scheme."

COLONIZATION OF THE TUBERCULOUS

"In a memorandum by Mr. J. E. Chapman, of the local Government Board, the value and prospects of the colony system are critically discussed. He finds that the experimental stage has not yet been passed, and that until more experience has been accumulated the adoption of any extensive system of colonies is undesirable. On the other hand, he recommends the tentative development of the colony system along lines which the present limited experience has shown to be the most promising. The memorandum marks the many blind alleys to which the colony system is apt to lead, and lays down certain principles which experience has already proved to be of importance. The colony, it is noted, should be attached to the sanatorium and not an isolated unit. It cannot be self-supporting; indeed, the gross expenditure per patient will be as great as, or greater than, in a sanatorium. Of the total expenditure, however, it is possible that 50 per cent. may be recovered by the sale of produce. The memorandum discussed the various occupations suitable for the tuberculous, and exposes the popular fallacy that agricultural work is light and easily learnt. The attitude of the trade-unions towards the half-trained tuberculous wage-earner is noted as one of the many obstacles to subsidizing this class of labour. The functions of the colony, it is suggested, should not be confined to housing and training the early case; it should also offer asylum to the moderately advanced case, the patient being fit enough to do a little work and not ill enough to accept treatment in a hospital. The memorandum gives a short account of the six colonies already in existence in England and Scotland, and it publishes plans of houses, suitable for the tuberculous, drawn by Mr. H. A. Chapman, F.R.I.B.A."*

---

*"The Lancet," London, June 4th, 1910.

For the use of vocational advisers and for physicians who have to counsel the individual patient as to the suitability of any industrial occupation, a set of standards* has been framed by which to judge the health factors to be considered in relation to the proposed job.

"The following standards cover nearly, if not quite all, the health factors that will enter into the problems of training and placement. Not all will have a bearing on every case, but all the cases met will involve most of them.

A few explanatory comments are given to make the subject clearer.

Group 1.—Factors due to the personality of the worker.

(a) Present Health.—The amount of damage done by and the degree of arrest of the tuberculous disease as shown by the medical survey, should be carefully considered.

(b) Temperament and education.—Is he "highstrung" or phlegmatic; stupid or quick of perception. The extent and direction of the man's education, both in school and by experience will enter into the choice of training course and job.

(c) Choice of vocation and trade.—It is a cardinal principle that the man shall be consulted as to his hopes and ambitions; that previous experience shall be utilized whenever possible in re-training. This holds true for tuberculosis as for other disabilities.

(d) Age.—Will have a direct bearing on training. One soldier, with only a common school education, who had been a warehouse man, wanted at the age of 39 to become a minister. The vocational adviser convinced him that his education was too limited and his age too advanced to undertake training for the ministry.

Group 2.—Factors due to conditions of work:

(a) Character of work.—Active or sedentary; heavy or light, involved and complicated, or simple as to operation; per diem or piece work.

(b) Attitude and position.—Sitting, standing, stooping. An occupation requiring a continuous stooping or strained position would be unsuitable.

(c) Time, duration and pauses.—Day or night work, the latter usually unsuitable.

The work should not be seasonal, requiring intensive application at certain times of the year, as the canning industry. The tenure of employment should be reasonably certain. Hours of work—eight or less, nine or more, unsuitable. Pauses—Lunch hour imperative and brief rest periods desirable.

(d) Fatigue, tension and responsibility.—Lifting heavy weights or any work requiring vigorous exertion of the upper extremities, especially if long continued, should be avoided. Severe bodily effort, continued nerve strain and too much responsibility are dangerous.

(e) Wages.—Must be adequate for the healthful support of the man and his family.

---

* H. A. Pattison, M.D., "Journal of the Outdoor Life," April, [illegible], adapted from "The Work [illegible] [illegible] D. Geo. M. P. C."

Group 3.—Factors due to materials and processes.

(a) Dusts. (b) Poisons. (c) Gases and fumes.—Their kind and quality must be taken into account. They may act as direct irritants to the throat and lungs, or lower the general "tone," thus leading to breakdown.

(b) Infectious material.—This will not affect employment in well-conducted sanatoria, where infectious material is properly disposed of.

(c) Dangerous machinery and appliances, affect the tuberculous no differently than other employees, except as nervous strain contributes to breakdown.

Group 4.—Factors due to the place of work.

(a) Outdoor and indoor work.—This has already been discussed. These cases should not go in strong draughts, nor high winds; under a burning sun; in superheated shops, greenhouses, etc., nor in slush and rain.

(b) Construction of work place.—Flooring is an important item. Damp or wet floors are unsuitable places. Basements, underground jobs and over-crowded shops should be avoided.

(c) Air and ventilation; temperature and humidity.—Frequent changes in shop air are imperative for the health of all workers. In artificially heated places of work and abode the most desirable temperature range is 65-70 F. The minimum for the tuberculous should be 55; the maximum should not exceed 75. Relative humidity for these temperatures should not be below 30 or above 60.

(d) Light and illumination.—The amount and intensity of light suitable for the kind of work to be done should be determined. This, however, is a matter of shop inspection for the placement officer, and it is suggested that he study the lighting codes of those states that have adopted such a code.

(e) Sanitary care and comforts.—Drinking, washing and toilet facilities of approved types. Club and rest rooms desirable.

Employers who have developed a department of industrial medicine will be more likely to have a sympathetic and helpful attitude toward the tuberculous workers."

In all the sanatoriums of the D. S. C. R. there is a vocational department with an officer in charge who confers with the medical officer as to the work for which each patient is fitted. The patient first uses the vocational work as a therapeutic measure, light occupation which helps out the tedium of prolonged institutional treatment, the essential of which is a period of rest, followed by occupation as his progress permits. This department has also recognized the great importance of after care, and is prepared to look after the patient subsequent to discharge.

With a Federal Department of Health now in view, there will be an opportunity to combine the work of the after care of the discharged tuberculous soldier with that of the after care of the discharged civilian. Why should we not give our civilian army the benefit of the same supervision? The man who has broken down with tuberculosis while an industrial worker, while on the farm, in the munition plant or elsewhere, is also a citizen who should be preserved to his country.

In Toronto our well organized and efficient Health Department is looking after both the sick soldier and his family and the sick industrial worker and his

family. This should be done throughout the Dominion, and we express the hope that ere long the efforts of our Provincial Health Officers to develop a system of rural health nursing, comparable to that in our own city, may soon bear fruit. In this work the co-operation of the trained health officer, aided by a physician with special experience in diseases of the chest, and associated with a competent vocational adviser in touch with industrial needs, we see a happy relation to the after care of the tuberculous soldier and civilian.

DIAGNOSIS OF TUBERCULOSIS*

a. There is in nearly every case a period in which the anatomical changes are not sufficiently advanced to enable you to make a diagnosis on physical examination alone.

b. That there are many individuals who, at some time of life have been infected with tuberculosis, in whom the lesion has become quiescent or healed completely. These may give physical signs, positive tuberculin, and roentgen ray pictures of a diseased lung but there is, in reality, no *disease* present.

c. To ascertain the presence of *disease*, that is activity of process in the lung, the symptomatology is of supreme importance.

d. There are many cases which you may rightly call pulmonary tuberculosis without being able to place your finger on the exact spot in the chest where that disease is but yet.

e. The diagnosis can usually be made exactly, if the examination be *complete*, if it be thorough, if we do not seek nor trust to any one or two signs or symptoms alone, if it be often repeated and the patient kept under observation; and due regard paid to the physical signs, the history and the symptomalogy.

Summarized from paper by Dr. Thos. J. McCrae, [illegible], New York, Journal American Medical Association, [illegible]

MEDICAL PROBLEMS RELATING TO THE REHABILITATION OF THE FUNCTIONAL NEUROSES OF WAR*

Geo. F. Boyer, M.D., Major C.A.M.C., Neurologist, Military Districts Nos. I. and II.

The problem of rehabilitating the functional nervous disturbances of war is one which is actively before us each day; and the importance of it is brought home, not only to the medical officers, but even more so to the general public and the country. There is not a class of casualty that will drift so readily with the tide of sympathy, or will react and be aggravated more by being casually dealt with than this group of cases. For this reason we are making great efforts to re-instate these cases as quickly as possible in civil life and have them absorbed in the industries of the land. It is not sufficient to say or to believe that this or that case or group of cases can, or cannot, should or should not, undertake their civil occupations again with the same zeal with which they were working before the onset of war.

We have to go a great deal further in the re-instatement than that. Force of circumstances is necessary in some cases, but not in all, and certainly not before we have given the patient some explanations of the production of symptoms and signs, and have gone some little way to quench the fires of martyrdom and injustice which are so common. It is not sufficient to say that he is a neurasthenic, an hysteric, a defective, a neurotic or a mild dement; for certainly in the first four at least it is necessary to work inside of the personality and find some of the deeper complexes, and offer some reasons for the symptoms produced and some suggestions for their relief. In other words: for instance, it is not sufficient to say that a case has a fear neurosis and leave him to struggle with the symptoms and signs of fear and its consequent repression. It is first necessary to make this man reason that fear is general and physical and reasonable, and anyone living in the atmosphere of war, disregarding and not analyzing its signs, becomes the picture of the agitated neurasthenia deeply concerned about the signs in his own autonomic system and his own symptoms.

For these reasons I will limit my remarks to three separate headings and will offer some suggestions how to deal with the problem:—

(1) Proper basing on reasonable psychological lines of the symptoms and signs of the neurosis (analysis of psychological forces).

(2) A rapid, equitable conclusion of the pensionable uncertainty in the patient's mind.

(3) Return to normal civil occupation.

---

*Read before the Ontario Medical Association, Toronto, May 4th, 1916.

For analysis of psychological forces it is most important that the patient come in the attitude of a patient, and want to learn of his own condition and problems, for this spells our first great step towards success—an attitude of self-negativism. It is the absence of this or even worse, a spirit of self-positiveness on the part of the patient, that increases the difficulty of the Medical Officers. The patient must be frank and "turn the light" onto his own complexes and problems, for only then can definite progress be made. The self-positive case will not do this. The self-negative case will talk and bring to light these very beginnings of disturbance, which, born in the presence of intense emotion, have left deep impressions which, unless faced and cleared away, will produce psychological reactions which must change the personality. On the other hand, the self-positive case, either through motive or because the personality has been changed, will not discuss these complexes, and so will not become conversant with them himself or allow anyone else to do so. It may be that in the neurosis of war we are dealing with a condition which might result in dementia if the complex is not relieved, but we are not justified in stating that they are dementias while only in the emotional phase. In other words, some of these cases of fear neurosis which continue and remain unsolved may be but the dementias in the making. For the self-negative case, a great deal can be done by the careful analysis of emotional stimuli, and by pointing out the subservient position of the patient's will, and by helping him to make it more assertive and dominant over the emotions. This requires an analytical and self-negative attitude assisted by a gradually increasing determination to win.

For the self-positive case, force of circumstance and the guidance of a firm necessity without maudling, useless sympathy may be the only reasonable course to follow. It is surprising how often one just "feels the presence" of a patient belonging to either group. The former is co-operative, and lacking material motive; the latter lacking in co-operation and content to "live and draw his pension" and talks with an elusiveness which is characteristically defensive. In the true fear neurosis, the apprehension neurosis, and some neurasthenias, the self-negativism usually predominates. In the rationalized and organized defensive anxiety neurosis, and the motive hysteria and malingering, usually self-positivism is characteristic.

In the former group of self-negativism we try to analyse the emotional motives that "drove their victims to earth" and try thus to show that they are so inherently human and animal that there is only a short interval of conscious control and will-power between the victim and the "man who carried on." One can say, "I will," and emotion having been cast aside before in the battles of life, has to remain subjective, while the other only can say or says, "I shall," and he means only that he will "if" the emotions let him.

So it is that heredity and environment in early life, education, and ideal enter much more into this subject than is generally conceived. Then, in the self-negative patient, he realises his position, he sees, perhaps, that his mistakes were earlier in life than he thought and he becomes an analytical, co-operative "determinist," which is our best type of case.

In short, it is by analysis that this type regains his self-respect, sufficiently to

make himself a real casualty in his own eyes, and so does not regard himself as an inferior entirely, but as one who has done his utmost for a cause as far as in him lay.

I have never found the true "Shell Shock" that did not wish he had an outward and visible sign sufficient in the eyes of the world. If he has not got that outward sign and does not become analytical, he calls to his aid the machinery of repression of complexes again and rationalization on false hypotheses.

It is the true repression case that shows emotional perturbation on discussing, thinking, reading, hearing, seeing or doing anything that recalls repressed episodes of France.

No man can go through life with obvious "holes" or "vacuums" consciously maintained. If he attempts it he becomes afraid of his own thoughts, and so the medical man that advises the true "shell shock" to forget France advises him badly. Time is a good healer it is true, but if repression is practised extensively, we surely see in almost all cases the accompanying insomnia and dreams or a conversion hysteria. The repression case "shell shocks" himself at night and goes through with tenfold realities the original phenomena.

Relief of repression is obviously first attempted by the patient when he becomes self-analytical and this necessitates uncovering of these repressed episodes and self-negative conversation at examination, often greatly furthered by the old well-known process of mental catharsis.

The soldier hanging aloof from conversation is trying to hide from his old thoughts; the repression case must not and cannot keep this censorship of his own consciousness on guard all the time; if he does, he will surely suffer. Why do these men repress? In my opinion in the vast majority of cases for the sole reason that they do not understand the function or power of the emotion of fear and then they confuse this with cowardice.

It is the constant conscious censorship that explains many of the slight amnesias, the lack of power of concentration, the "just not feeling the same" or even the more severe amnesias and somnambulisms. This mechanism must be gone into, these "darkened corners of memory," these "idea-tight" and "argument-tight" compartments must be investigated, and here we often find episodes recorded in the most emotional colouring which are not as bad as the patient thinks, because they were recorded under conditions of intense emotion and hence necessarily in a state of lack or absence of criticism or analysis.

Having then advised as to the conscious censorship it becomes our duty to give the consciousness good channels to flow into, and to accomplish this we must appeal to the patient's industrial tastes, and having set before him several branches of occupation he must choose and choose well. In some of these we see another instance of being "lesser resistence men," for a choice is delayed and procrastination dominates; but if so, a choice is made for them. It is for the diversion of the stream of consciousness into normal occupation that we try to early interest the patient in basket work, weaving, wood carving or stencil work; even when in bed. In many the fear of failure delays the initial step to attempt work or occupation of any sort even in a gymnasium. No better reason is offered, and this is accepted

as sufficient basis for remaining in statu quo, and the statu quo of a neurosis spells rationalization for the patient's symptoms and signs; and once rationalized to civil life we have a much more difficult problem to combat than the virgin primary fear neurosis. The earlier the patient is got to co-operate the better and the more permanent the "cure." The rationalization of the neurosis is often very difficult to combat; and here I want to caution you on this point. The neurotic rationalizes frequently on the certificates of physicians and surgeons, too often given on the signs only of neurosis which vary so much that the same patient cannot be recognized often on two separate occasions only a day apart. The fact a man has a "fit" does not in the majority of cases spell Epilepsy; yet I have seen unbreakable rationalization on a certificate quickly and casually given by a physician. I have had it even stated that the army bromides are no good, in order to substantiate a claim for a grant of money (re-inforced by a physician's certificate) to buy bromide for what certainly was an hysterical "fit." There is no more misused document than the certificate that a patient has neurasthenia and has a faulty cardiac mechanism, or that he has an ungetable hysteria. These patients treasure these documents and fortify their beliefs in them, and they all go to rationalize the patient in his disability, his martyrdom, his appeal for sympathy and his sense of injustice unless his pension is increased or at least remains the same.

Sympathy does not help if it but aggravates a feeling of injustice. If sympathy is tempered with occupation and material encouragement, then the neurotic is stimulated to further and better efforts towards success and happiness. One of the strongest grounds for rationalization is the fact that many insurance companies are not taking as a risk the war neurotic. Time will tell whether they are right or not. I am convinced that if the autonomic system is much disturbed and if the neurosis has existed for long, then the insurance companies are right in "waiting to see." In the case of the neurotic and in the case of all returned men, could not the Dominion undertake a system of national insurance which would ignore every disability in any returned man (casualty or otherwise)? Every one has suffered to a greater or less extent by conditions under which he has worked for his country in the past five bad years.

It is accepted by the insurance company that a man with a peripheral nerve lesion, for instance, is not as apt in avoiding danger as he was before injury. Is it not a parallel to say that perhaps the case of neurosis is more susceptible to unanalyzed impulses, and if the insurance is refused by corporations, to whom can he look for that right but to a grateful country?

For the second subdivision I want to quote Sir John Collie when he cites the national statistics of Denmark and Germany before the war in the case of traumatic neurasthenia. In Denmark it was the law to settle a claim with a gratuity, and in all the land only 9.1% of cases recurred; in Germany pension was paid as long as the disability existed and 93.6% of cases continued. Surely those statistics speak for themselves! I am convinced that the vast majority of the cases of the neuroses of war will be finally dealt with when we reach a rapid, equitable conclusion of the uncertainty of pension in these patients' minds. We must eradicate any feeling

of injustice. We must not give one a large percentage and another a small percentage disability and so create an already too often present sense of injustice. It is for this purpose that I have been in favour of the granting of a gratuity. I have seen not a few neurotics who, by their own statements, have justified pensions on the basis of men of their acquaintance who, they say, are not as disabled as they themselves and who get a pension larger than their own. We must have it known that all are dealt with alike, and when that is known, the vast majority are willing and want "to do their bit," providing there is absolute impartial equality.

Thirdly, we have to deal with the industrial situation, and here we need the patient help of the employer. We need his co-operation, for his unguarded sympathy only aggravates the patient's ideas of injustice, and on the other hand, if he is too harsh and too material, the neurotic finds himself without a situation and he is only too ready to believe that it is due to his infirmity, and his infirmity is due only to war. The industrial re-adjustment that is taking place to-day with its many men out of work is very prone to produce a state of affairs specially hard on the neurotics. They are more prone to a genuine apprehension or anxiety and these produce symptoms and signs. Sometimes sincere cases come and volunteer that all they need is an opportunity to work. The one word of all others that the neurotic needs to-day in his industrial life is, "encouragement." If he gets on well his neurosis soon disappears. Two courses could be followed in dealing with these sincere cases; firstly, the provision by the Government for occupations in official posts requiring various degrees of mental and physical activity, and secondly, a solution might be reached if the state made up to the employer a small amount of money to make the man's real industrial worth in the labour market sufficient to be a living wage. Occupation of some sort would necessarily be a *sine qua non* for any Government consideration at all, aside from admission to an institution for occupation or treatment.

But I am convinced that the way to rationalize and aggravate the neuroses of war is to pay pension, for many of our most difficult and persistent cases are the old "shell shocks" of St. Julien and Langemark who were returned to Canada and granted a 100% disability.

THE TREATMENT OF PUERPERAL SEPTICEMIA. A SPECIAL CONSIDERATION OF INTRAVENOUS STERILIZATION WITH CHLORAZENE AND EUSOL*

GORDON G. COPELAND, B.A., M.B.
Assistant Obstetrical Surgeon, Toronto Western Hospital.

More than eight thousand women die every year in North America from puerperal septicemia, according to DeLee[1]; while many thousands more go on to only partial recovery and chronic invalidism. Easily 95% of this appalling mortality and morbidity is preventable by a miserly minimum of interference and a flawless technic.

THE BEST TREATMENT OF PUERPERAL SEPSIS IS PREVENTION

In more than 75% of pregnant women whom I attend, and who deliver themselves spontaneously, I make no vaginal examinations at all in labour. I can get all the information I need, in the great majority of cases, by a combination of abdominal and rectal examinations, that is, I ascertain the condition and position of the child, the presentation and descent of the presenting part, the dilatation and softness and thickness of the cervix, and usually the condition of the membranes. Where certain operative procedures, such as rupture of the membranes, induction of labour, manual dilatation of the cervix, version, forceps, etc., are necessary, as they not infrequently are, the most scrupulous care to render the genital field as nearly aseptic as possible, and keep it that way, by plenty of soap and water, shaving, using care not to allow any contaminated fluid to enter the vagina, and an efficient antiseptic properly employed, but not relied on to the extent of thinking that because an antiseptic is used it is safe to neglect or slur over certain refinements of technic in the introduction of fingers, hand or apparatus, whereby the smallest possible ingoing surface touches the impossible-to-sterilize vulva and introitus, and the irreproachable sterility of gloves, instruments and materials that come into contact with the birth tract either directly or indirectly, are points, I contend, of the greatest possible importance which the profession as a whole has been criminally negligent in, and the failure to honestly and scientifically carry out these seemingly simple details has sent, and what is worse, is continuing to send thousands of our women in the prime of their lives, to untimely, and positively unnecessary graves, or chronic ill health. The time must soon come when women will demand as great care for themselves and their unborn child, as they now get

*Read before the Section on Obstetrics and Gynaecology of the Ontario Medical Association, June 4th, May 30th, 1917.

for comparatively trivial surgical conditions. Gynecologists take great care to have the perineum properly prepared to do a repair, yet where the risks are many times greater to life and health, the average practitioner, and the woman herself, are careless about having the field of delivery and possible operation correctly prepared.

THE BEST TREATMENT OF PUERPERAL SEPSIS IS PREVENTION

Unfortunately, however, puerperal infection is occurring more frequently than is admitted. While the blame should go where it belongs, namely on the shoulders of the dirty, careless doctor, midwife, nurse, or other person in attendance at the birth, or even the woman herself, yet there are occasional cases where the infection arises from the woman herself—auto-infection, where no blame should be attached to any one attending the case carefully. Such a case I will speak of farther on. The important point is that we have these cases of sepsis sent in to us. They rarely arise in the hospital. These cases must be treated, and only too often in the past our weapons for fighting this dreadful disease have been ineffective. I shall only touch the general measures very briefly; certain well-known specific measures will only be mentioned because I wish especially to call your attention to some new and seemingly specific remedies.

GENERAL MEASURES

Increase the resisting powers of the woman suffering from puerperal sepsis by rest in bed, fresh air and sunlight, an easily digested diet, plenty of water, quinine in large doses, and later iron; where the stomach can tolerate it, fresh yeast cake, gelatine, etc., where the stomach is upset or the patient will not eat, glucose by rectal drip, or if the rectum is irritable, glucose interstitially or intravenously is excellent, an immediately available food. I do not know of a better method of bracing up a failing, starving and toxic heart than by an interstitial of glucose, 200 grams in a 1000 c.c. of saline, sterilized by boiling. Again, a blood transfusion is very valuable. Leucocytic extract is advised, though I have had no personal experience with it. The French school of obstetricians speak highly of an abscess of fixation in long septic cases.

Eliminate waste products by bowel, kidney and skin, but do not exhaust the patient by excessive purgation. If the germs are in the blood stream purgation will not drive them out. The type of sepsis we meet here now is quite a different disease to that treated so successfully by purgation at the Queen Charlotte a hundred years ago by a distinguished namesake of mine.

Eliminate the special toxins and germs from the genital tract by posture, get good drainage. Do not interfere with the interior of the uterus. Only for hemorrhage should the uterus be entered. A careful examination of the afterbirth right after delivery will show whether it is complete or not. Even if all the membranes are retained, let them alone, they will come out with the lochia, as will small pieces of placenta. Where the cervix, as determined by rectal examination, is large

enough to admit a finger and no acute antiflexion or retroflexion exists, no good will come of intrauterine douches. Let the uterus strictly alone. I think Prof. B. P. Watson's[2] teaching of a policy of non-interference locally in these cases is, in most instances, the correct one, and will save many women from pernicious interference too frequent in the past. Above all do not curette a septic uterus. If sure a considerable sized piece of placenta has been retained and a general blood stream infection is present, if conditions for removal are favourable, the careful clearing out with the sterile gloved finger, possibly covered with sterile gauze, and the institution of continuous irrigations with Carrel-Dakin solution after the manner described by Sherman[3] might be advisable. If a blood stream infection is not present, one should hesitate before entering the uterus and converting a local into a general infection. It is almost impossible to even touch the interior of an infected uterus without dislodging infected thrombi into the blood stream and breaking down the wall of leucocytes. Should an anæsthetic be necessary, do not give chloroform, as it destroys the leucocytes, a very important defence against infection. Ether, or preferably gas or oxygen, should be used. Eusol or chlorazene solution may be used instead of Carrel-Dakin solution, or hypertonic saline. The swabbing out with iodine, again, is more likely to open channels of infection. I think the instillation of weak iodine solution or alcohol, or bichloride is good, but not so good as the chlorine solutions, if intrauterine irrigations are necessary, which is rarely.

Where septic foci arise, as in pelvic cellulitis, they should be dealt with by recognized surgical methods at the opportune time. This usually means when the abscess points. Short of this, let nature wall off the local process, and it may resolve.

Where the pelvic veins are infected and thrombosed, if a clear-cut diagnosis can be made and conditions and experience warrant it, their ligature, and removal if possible, may be productive of much good. This is a risky procedure unless one is a good surgeon and familiar with this special region. I once helped Jellett do this operation.

SPECIAL TREATMENT

Finally, the special treatment which aims at the direct destruction of the invading organisms and their toxins is of first importance. Where the specific organism has been demonstrated in the blood stream by culture or smear, or where the clinical course indicates its probable existence, a stock antitoxic serum prepared against the invading organism may be of great advantage if given early in large doses. This is of greatest value, I think, where the bacterial toxins are being absorbed, rather than the organisms themselves being thrown into the blood. Where the temperature is rapidly falling, the serum should be withheld, for the time at least, as bad results have been reported where antistreptococcic serum was given in a blood stream infection with a rapidly falling temperature. The serum seems to be bacteriolytic and apparently liberates large amounts of endotoxin, which may greatly depress the patient.

In prolonged cases, if a suitable donor can be obtained, and vaccinated against the invading organism and when immunity has been established, a transfusion of immunized blood made, the result is likely to be good. I believe vaccines do good in the protracted cases where they have time to act.

The intravenous injection of the colloids of gold and silver have not, in my limited experience of them abroad, given consistently good results, though an occasional brilliant result makes one remember them if other remedies fail.

Again the intravenous injections of mercuric chloride up to as high as 10 c.c. of the 1:1000 solution as reported by Pérez[4] have given good results after smaller doses had been given to test for idiosyncrasy. Poisonous effects have been reported even in small doses.

While I personally give large doses of hexamethylene tetramine by mouth, that is 10 to 15 grains well diluted in water every six hours and think it does inhibit bacterial growth, yet not a few observers have lately advised that it be given intravenously and get a much more pronounced effect. 1 to 2 grams may be dissolved, in the cold, in sterile water 30 c.c., filtered if necessary, and given intravenously for 4 or 5 days, as suggested by A. da Matta.[5]

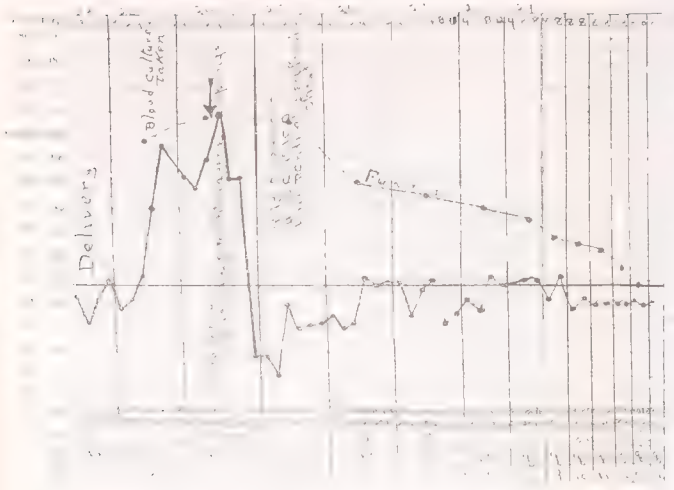
Now puerperal septicemia is so generally a bacteremia or blood stream infection that I shall so consider it here. As the patient dies so quickly if the organism is very virulent, there is not time for the general measures I have indicated to become effective, though they should be used when and where indicated, for if we can tide the woman over the acute stage of general septicemia, we may still have a long struggle before us wherein all the resources of the patient may be tried to the utmost, therefore we should try to build up her resistance by all practical means in our power. The disease being, then, primarily and essentially a blood stream infection, the logical and by far the most effective mode of attack is in the blood stream itself. While the streptococci are the usual and generally the most virulent invaders, other organisms, such as the staphalococci, pneumococci, colon bacillus and others, are at times responsible.

As a result of my own experience and that of not a few others, I believe we now have in certain chlorine compounds new and powerful therapeutic agents, and as they are not so well known as they deserve to be, I desire to present to you some observations on their use.

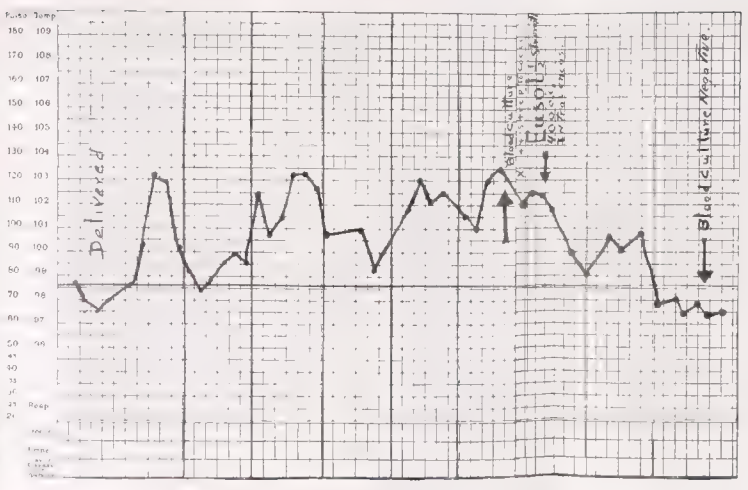
The intravenous injection of chlorazene (chloramine-T) and eusol on the one hand and of certain arsenic preparations, such as salvarsan, galyl, arsphenamine, diarsenol, arsenobenzol, etc., have been proven beyond doubt to be powerfully germicidal, and several of these are also antitoxic, against many of the organisms usually found in this disease, as well as other blood stream infections, not puerperal; and, in addition, in proper doses these drugs do not seem harmful to the woman.

My own personal results with chlorazene, and to a very limited extent, with galyl, have been so strikingly good that I felt it was my duty to place the facts before you. However, on enquiry among men doing progressive work in obstetrics here, I found they had had similar results, and it occurred to me that if I could

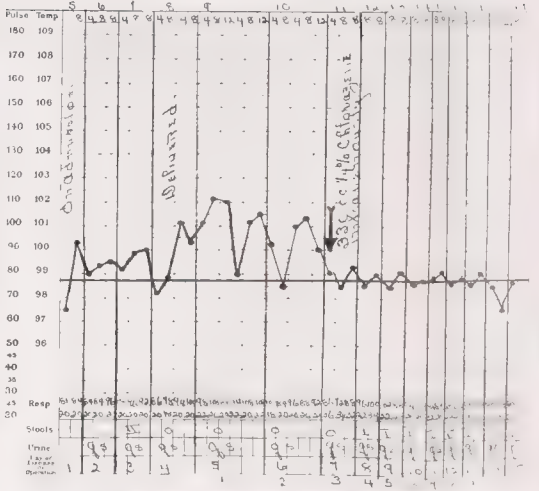
Toronto Western Hospital Clinical Chart. Name Mrs. M.—
Serial No. 22503 Date June 22 1915 Dr Copeland



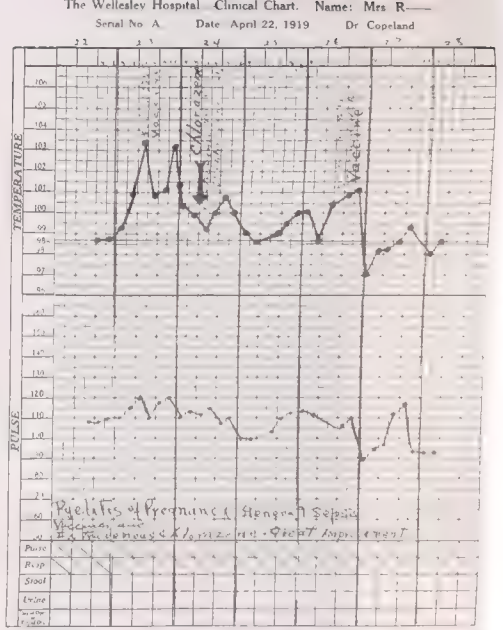
Toronto Western Hospital—Clinical Chart. Name: Mrs. P. M.—
Serial No 8056 Date. June 19, 1918. Drs Gallie and Hanley



Toronto Western Hospital—Clinical Chart. Name: Mrs. E. M.—
Serial No. 2485. Date: April 4, 1919. Dr. Copeland.



The Wellesley Hospital Clinical Chart. Name: Mrs. R.—
Serial No. A. Date April 22, 1919 Dr Copeland



present to you the combined experience of many of us, it would be much more convincing and would remove the personal factor so liable to bias. So through the kindness of several doctors whom I here desire to thank for their co-operation, I am able to show you several temperature charts in addition to some of my own. The effects of these chlorine compounds are shown.

There is not time to go into the excellent papers of Lorraine Smith, Ritchie and Rettie,[6] nor our own Dr. J. H. Elliott,[7] one of the first in Canada to give intravenous eusol in puerperal sepsis, with a brilliant result, nor to elaborate on my own early cases with intravenous chlorazene. Millar and Chalfant[8] had splendid results using arsenic preparations, such as salvarsan. I had good results in one case using galyl. Fraser, Campbell and Dickson[9], and among our own men, Wm. Ferguson, J. J. Matheson and the author have proven the value of intravenous chlorine compounds in general septicemias from various foci other than puerperal, while Col. Gilmour[10] has had good results in general septicemias among the war wounded.

Now, once we have a streptococcuc invasion of the blood stream, whether in a man or a woman, regardless of its origin, the specific method of attack is in the blood stream itself. In the puerperal woman we have in addition the usual site of infection in the genital tract, a special problem in itself, though I have seen puerperal infections with general blood stream invasion originate in the tonsils. Such a case only lacked the local genital infection to make it typical.

The late C. S. Allison[11] has proven conclusively that salvarsan and allied arsenic preparations are actively germicidal to the streptococcus, though not rapidly so. Salvarsan does not seem to be anti-toxic.

Douglas and Colbrook[12] have proven salvarsan germicidal to the staphalococcus. I can say, however, that there is a certain organism which seems totally unaffected by intravenous chlorazene, and probably also by eusol.

Given in the way I shall indicate shortly, both chlorazene and eusol have not, to my knowledge, had any serious bad effects such as are reported of salvarsan and allied products. I have heard of death following intravenous eusol given undiluted, so one must use great care with these drugs until they are thoroughly investigated. Carrel-Dakin solution given intraveenously has caused hemolysis, and is therefore dangerous. Although I have seen a rigor follow intravenous chlorazene, a similar rigor had occurred the day before as a result of the disease. An occasional rigor would seem to indicate that the maximum dose had been given. The doses I give are the largest that should be given and are for large women. A smaller dose should be used for small women.

As a result of these observations, and others too numerous to mention here, we can now say with fair certainty, that when a diagnosis of puerperal bacteremia is made, if then 400 c.c. or ¼% (quarter per cent.) solution of chlorazene in sterile saline is injected into the blood stream of the infected woman, under aseptic precautions, we may expect the organism to be killed and its toxins disposed of. If no further organisms enter the blood, this may in itself constitute a cure. If foci of infection remain to re-infect the blood, they should be dealt with locally if ad-

visable, or by further injections of chlorazene, eusol or arsenic preparations at 4 to 5 day intervals. Until animal experimentation with these chlorine compounds shows wherein are the limits of safety, we should go slow lest we unwittingly do our patient damage.

Personally I prefer chlorazene, as it has seemed to me to give more constant results. Due to great variations in chlorine content of bleaching powder, eusol is not so likely to be uniform. Chlorazene is much easier of preparation, but eusol may be made nearly anywhere.

MODE OF PREPARATION OF CHLORAZENE SOLUTION

Remove three of the 4.6 grain tablets of chlorazene (I have always used Abbott's preparation, as it was the first available here, and these results here spoken of have all been made with this firm's product, though I know other firms have since placed it on the market here), from an original bottle with dry sterile forceps, and drop into a sterile flask containing 100 c.c. of cold sterile water, preferably freshly distilled. Allow to stand an hour. (Solutions of chlorazene and eusol should not be heated, as this drives off the active agent, chlorine. If this point is not observed, failure will result. This might account for some poor results reported with eusol.) The tablets being dissolved, the solution is diluted with 300 c.c. of sterile fresh saline warm enough to bring the whole solution to just blood heat. This is then injected into a suitable vein under aseptic precautions, as if giving salvarsan.

Eusol is made as follows, using a full strength bleaching powder: "To one litre (1000 c.c.) of water (sterile to start with, author) add 12.5 grams of bleaching powder (chloride of lime) and shake vigorously, and then add 12.5 grams of boric acid powder, and shake again. Allow to stand over night, then filter off (through sterile materials, author), and the solution is ready for use."

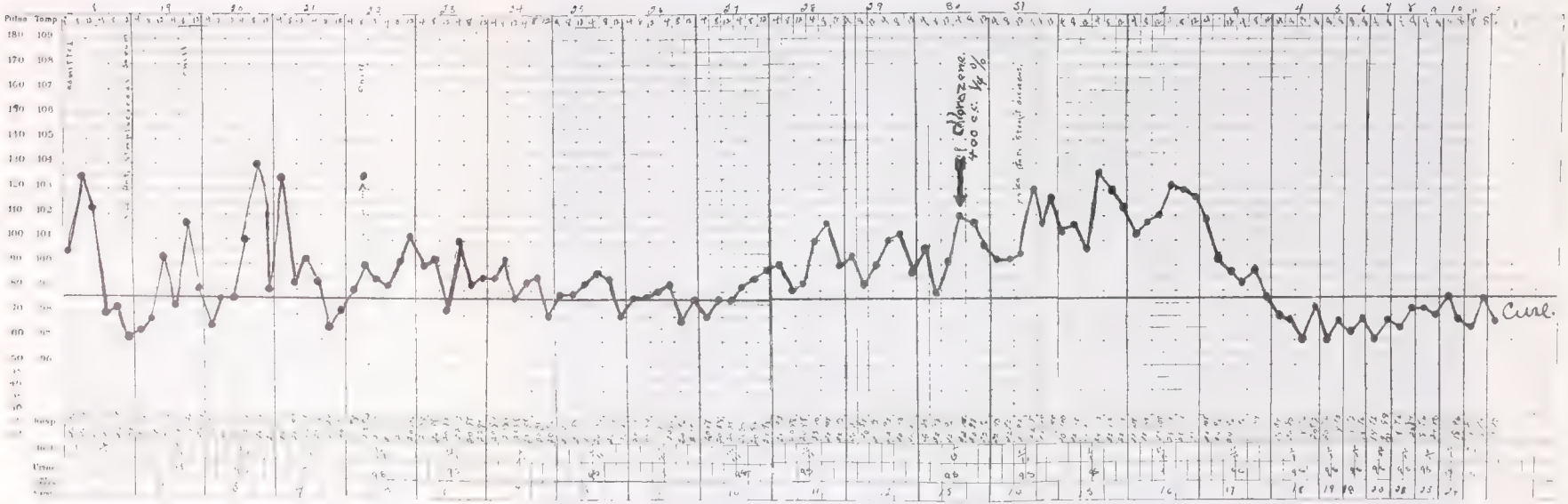
100 c.c. of eusol may be added to 300 c.c. of sterile saline at blood heat and given slowly intravenously as described for chlorazene. This dose should not be exceeded. Eusol must be well diluted or death may result.

It is historic justice that we are returning to the chlorine products in the treatment of puerperal septicemia, a belated honour to Semmelweis.

The arsenic preparations should, I think, be used preferably in cases where syphilis is present in the patient, though the chlorine compounds may well be active against the spirochete also. Full doses should be used, and according to the special directions for each preparation, according to the method advised by Millar and Chalfant.

Brief details of a case of auto-infection, or spontaneous puerperal bacteremia will show you the typical effects to be expected from intravenous chlorazene (or eusol, too, probably) when given early in the infection. I show you the chart.

Toronto Western Hospital—Clinical Chart. Name: Mrs. H.—— Serial No. 2260. Drs. Lailey, Ferguson and Cornell. Date: March 18, 1919.



Mrs. Mary N——e, age 25, in apparent health, 2 para, in labour at full term for 6 hours, *no vaginal examinations were made*, labour was easy and normal throughout; no anæsthetic was given as none was necessary, birth was normal, L.O.A.; there were no lacerations of the perineum; I personally expressed the afterbirth which was complete, there was no hemorrhage or shock, absolutely no interference; a perfectly normal labour. On the second day post-partum, the woman became violently ill, had a high fever, 103 Fah., and had a rigor; the condition was clinically a typical streptococcus bacteremia. The woman was isolated, a blood culture was taken. Then the patient was propped up for drainage, given lots of water and fresh air and a nourishing diet; quinine and urotropin were given by mouth. No internal examinations were made, as it seemed to me they were quite uncalled for and could only do further damage. The condition rapidly grew worse, and on the third day the temperature had risen to 105 Fah. at 4 p.m., when I visited her for the second time that day. She was desperately ill. At this moment the report came from the laboratory, the blood culture was teeming with virulent streptococci. I had Dr. Wm. Ferguson, to whom I am indebted for assistance in many of my cases, give the woman an injection of chlorazene intravenously. The temperature continued to rise to practically 106 Fah., when she had another rigor and was in extremis. As I had to leave before this occurred, Dr. Wesley, who was available, kindly had stimulants given, with beneficial results, though for a time it looked as if she were going to die.

The next morning the woman was sitting up in bed knitting, apparently almost normal, and quite happy, had a temperature just over 97, and made an uneventful recovery. Further blood cultures proved negative. The bloods of both mother and baby gave a plus 4 Wassermann reaction and they were treated for syphilis by galyl for the mother and calomel inunctions for the baby. Seen nine months after, both mother and baby appeared quite well.

I have had a series of 12 cases of puerperal septicemia in which I used intravenous chlorazene. There were two deaths. All but two were sent in already septic, or were seen in consultation. I have been fortunate in having no case go septic where I had had complete control from start to finish. The case just presented was one of the rare cases of auto-infection in which no one was to blame. The cure was most remarkable.

The other case which went septic was that of a negress who had had a very hard labour, had been examined by several before I saw her, and had a foul vaginal discharge. The baby died during labour and embryotomy was necessary to remove it. I used every reasonable effort to clean the genital tract without at the same time doing damage, but the woman, a suspect from the first, promptly went septic, a streptococcus bacteremia was proven by blood culture. Some temporary improvement followed intravenous chlorazene, but she developed streptococcus pneumonia and died in spite of all efforts to save her.

The second fatal case in this series was that of a woman sent into our service at the Western Hospital, after having been septic a week outside, following an abortion at between two and three months. She was placed under Dr. A. A. Mac-

Donald, chief of the service. Two days later, as he had to leave the city, she was placed under me.

I made a rectal examination. The uterus was large and boggy. I thought a considerable part of the placenta was retained, and as she had a foul discharge, I thought the careful wiping out with the sterile gloved finger, covered with sterile gauze, might remove these remains and so remove a breeding place for organisms. This I carried out under light ether anæsthesia, which did not last 15 minutes. I obtained about an ounce of debris, and took cultures of the uterine contents, and placed in a large doubled rubber tube with big holes at the end to allow for a free return flow, and instituted frequent irrigations with eusol under low tension. Smears of the local infection proved the predominating organism to be the same as was later recovered from the blood stream infection. The blood culture showed a free growth of a gram positive thick diplo-bacillus. Intravenous chlorazene was given. Slight improvement resulted. The next day a further blood culture was taken, and smears made at the same time showed the same diplo-bacillus. Chlorazene was given on three occasions and blood cultures continued to show that the organism was present, apparently unaffected by the chlorazene. The uterine discharge was much improved. Other treatment, such as quinine, hexamine, etc., was given, but all to end in failure. The woman died, not responding to any treatment given. Other intravenous medication might have been tried, such as the arsenic preparations, silver colloid, etc., though I doubt whether these would have saved her. After all one cannot use all known remedies on one patient, but must choose a few from certain groups.

Of the remaining ten cases of this series, the streptococcus was demonstrated in three, the staphalococcus in one, an organism was obtained in two others, but was not identified; the remainder gave negative blood cultures, but were clinically bacteremias. This probably means that the ordinary cultural methods did not favour their growth, rather than that they did not exist.

Considering the extremely fatal nature of these puerperal bacteremias, I think the effects of chlorazene or eusol given intravenously were very encouraging. Cases of pelvic cellulitis with bacteremias have been greatly benefited, as have also cases of metastatic bacteremias or pyemias. I think we have had sufficiently good results to warrant us in continuing to use these drugs in similar cases, but not neglecting other well-known and good methods, and above all keeping an open mind on this subject.

The following doctors have reported cures following the intravenous injection of eusol or chlorazene:

(1) Streptococcic bacteremia:

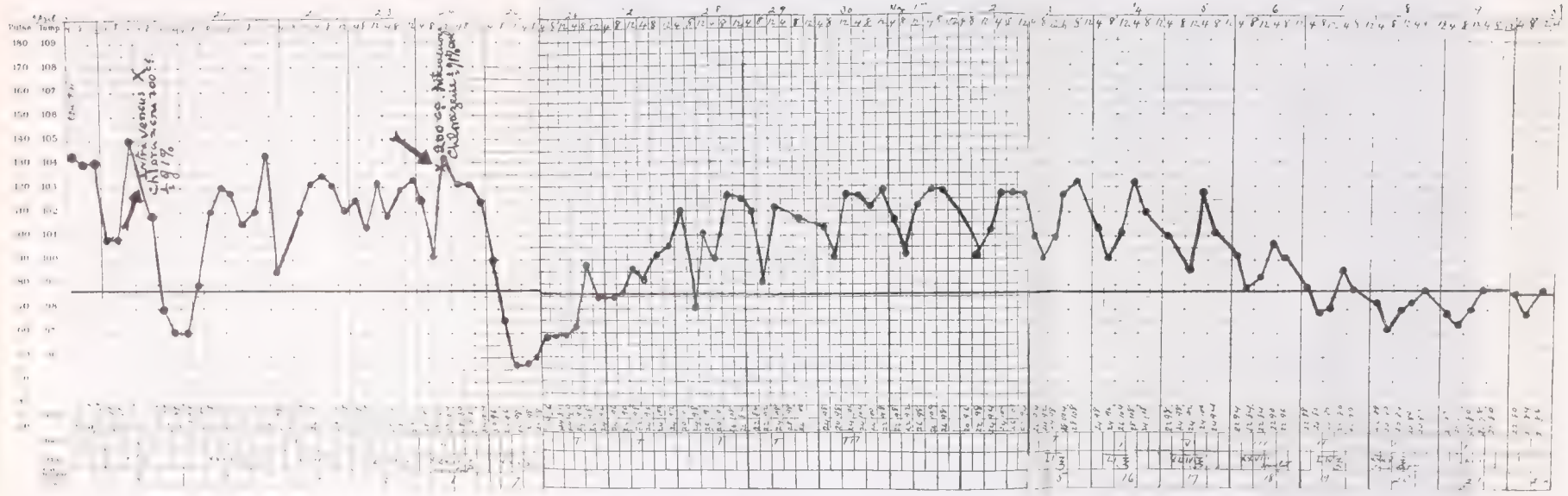
Intravenous eusol—cures: Dr. J. H. Elliott, Prof. B. P. Watson, Drs. Gordon Gallie and T. R. Hanley.

(2) Streptococcic bacteremia and pelvic cellulitis:

Intravenous eusol—cure: Drs. Thistle, Marlow and Scott.

Intravenous chlorazene—cure: Drs. Cornell, Lailey and Wm. Ferguson.

Toronto Western Hospital -Clinical Chart. Name: Mrs. N. L.—— Serial No. B. Dr. Matheson Date: April 19, 1919.



(3) Puerperal bacteremia, clinically streptococcic:

Intravenous chlorazene—cure: Dr. J. J. Matheson.

Drs. D'arcy Frawley and Harris have spoken favourably to me as to the action of these drugs.

Dr. C. Stewart Wright, knowing I was specially interested, asked me to give intravenous chlorazene in a case of staphalococcus osteomyelitis, which was not responding to the usual surgical treatment. Cure followed so promptly that it did seem like cause and effect.

From these results I think we might fairly say that these drugs do frequently give splendid results, better than the average resulting from other treatment, and hence they deserve a thorough trial when occasions such as I have here noted arise, though I hope by preventive measures these terrible diseases will become rare.

The best treatment of puerperal septicemia is prevention.

N.B.—Owing to the length of some charts shown at the meeting they had to be omitted.

SUMMARY AND CONCLUSIONS

1. In North America every year more than eight thousand women die from puerperal infections, 95% of which is preventable by careful technic and a minimum of interference. Rectal and abdominal examinations during labour give all necessary knowledge in uncomplicated cases.

2. General measures should be used to build up the resistance of the patient, such as rest in bed, propped up; plenty of fresh air and sunlight, free fluids and a liberal diet, with quinine and hexamine by mouth.

3. Let the uterus alone in the majority of cases. Interference as usually done, does more harm than good and may convert what is a local, into a general septic condition.

4. Intravenous or interstitial glucose in saline, is an excellent food and stimulant to a toxic and starved heart.

5. 13.8 grains of chlorazene dissolved in 100 c.c. cold sterile water, diluted with physiological saline to 400 c.c. and brought to blood heat and injected intravenously with strict aseptic precautions, seems to kill the streptococcus and several other organisms in a blood stream infection, as well as destroying the toxins. This will often constitute a cure if no re-infection occurs. This may be repeated in four or five days if necessary. This is a maximum dose and smaller doses have been effective.

6. Eusol may be given intravenously, diluted four times with sterile saline. Deaths have followed giving eusol undiluted.

7. The author reports 12 cases, with 2 deaths. One death was caused by a streptococcic bacteremia; the other, a gram positive diplo-bacillus. Chlorazene did not affect this organism.

8. Charts of cases treated with eusol or chlorazene intravenously by other Toronto doctors showed cures in the following conditions: puerperal septicemia,

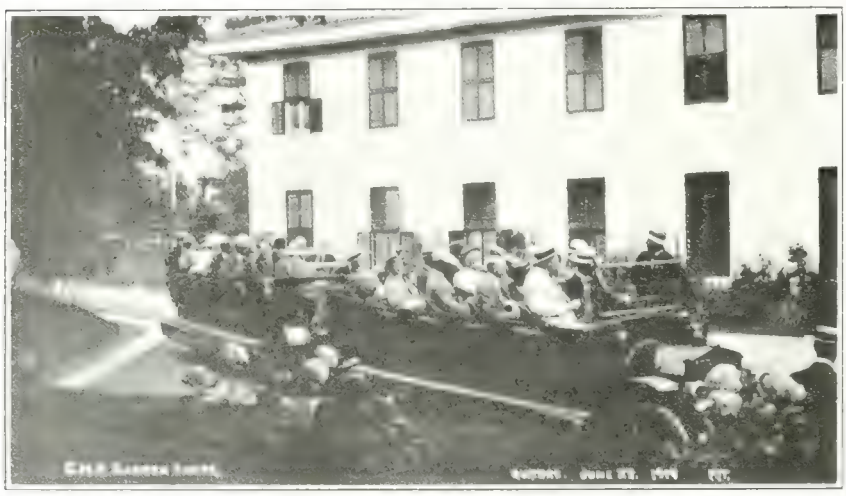
proven streptococcus, four cases; streptococcus bacteremia and pelvic cellulitis, two cases; puerperal bacteremia, clinical diagnosis, one case.

9. The author thinks with these results, these drugs deserve a fair trial by the profession in similar cases.

BIBLIOGRAPHY

1. DeLee—Principles and Practice of Obstetrics.
2. B. P. Watson and W. A. Scott, Jour. Can. Med. Assoc., VIII, 1918.
3. Sherman.
4. Perez, Medicina, Madrid, Aug. 31st, 1918.
5. A. da Matta, Rev., J.A.M.A., May 24th, 1919, p. 1589.
6. Lorraine Smith, Ritchie & Ritchie, B.M.J., Nov. 13th, 1915.
7. Transactions Tor. Academy Med., 1915-16. Paper, J. H. Elliott, "Treatment of Puerperal Septicemia by Intravenous Eusol."
8. Millar and Charlton, Rev. Sur. Gyn. & Obstets., Aug., 1918, p. 163-4.
9. Fraser, Campbell and Dickson, B.M.J., March 17th, 1917.
10. Cor. Gilmour, Can. Jour. Med. & Sur., Feb., 1918.
11. C. S. Nicholls, Jour. Med. Research, March, 1917, and private communication.
12. S. R. Douglas and L. C. Colebrook, Lancet, Jan. 22nd, 1916; ref. to by H.

Delegates to C.M.A. Convention arriving at "Spetchwood" for garden party, June 25, 1919.



Delegates to C.M.A. Convention arriving at "Spetchwood" for garden party, June 25, 1919.

Current Literature

IN MEMORIAM

A New Translation of Pericles' Speech to the Athenians. (Thucydides. Bk. II. 41-44.)

By Arthur S. Way.

More than 2,300 years ago the Athenians honoured with a public funeral those who had fallen in a great war. Their leading statesman then delivered the funeral oration, which, so abiding are the highest qualities of humanity, might be uttered to-day over our own fallen heroes; for every word of it is as applicable to the modern Britons as to the ancient Greeks. After dwelling on the moral and material greatness of their country, and pointing out that it was the character of her citizens that had made her so great, Pericles continued:

"Such is the country for which these men, fixed in their resolve not to lose their inheritance in her, so nobly have fought and died; and sure may we be that every yet living son of hers will gladly so spend and be spent for her. I have dwelt upon the greatness of our land, because I want you to bear in mind that the rights and privileges for which we contend are beyond comparison greater than those possessed by the dwellers in less favoured lands, and because I want to establish by manifest proofs that it is no vain praise which is now uttered over these fallen heroes. I have sung the praises of our country; but it was the heroism of these men, and such as these, that has made her so glorious. Few there are in neighbouring states whose achievements have so rarely fallen below their olden renown. The sacrifice of their lives, which we mourn this day, has for some of them been the first revelation of the heroism that was in them; for all it has been the final confirmation thereof. There may have been some among them whose previous lives were not worthy of them; but Justice bids look to the end, to the heroism that lay deep in all—all these who died for fatherland. Not the evil done, but the good lives after these, who have thus more than atoned to their country for all shortcomings. Some of them were wealthy—the lure of riches made no

heart falter; some of them looked to become so—none flinched from peril by reason of that hope of good days to be. The task they set themselves was to smite our foes—that was the one thing desirable in their eyes. They faced danger—and that they accounted most glorious. Their one high resolve was to wrest victory from peril's grip—that was the goal to which they strained. They had turned their backs on old dreams of success in life; it was the hour for deeds. They looked the imminent peril in the face; they were proved to be true to themselves. In the midst of death they held it a nobler thing to fight and fall than to flinch and live. The one thing they shrank from was a dishonoured name. Holding their lives in their hands, they abode the issue; and then, in the flash of an instant, were their spirits caught up from a scene, not of terror—no, of glory! A misfortune for them?—nay, rather was it the crown of all their fortunes. Worthy were they of their country, these who proved their manhood thus! You who are yet alive may, indeed, hope that in the day of battle, death may pass you by; but you cannot hope to bear a more gallant spirit in facing his terrors.

"One might talk endlessly of the advantages to be won by such resistance to wrong, might dilate on the peace, the prosperity thus to be attained—but you know all that as well as I do; and it is not on profit and loss that you are called to fix your eyes. No—let your thoughts dwell day by day on your country's true greatness, till you become her lovers, her passionate lovers. And when you realize all her grandeur, bethink you that it was a heritage won for you by dauntless men who knew their duty and did it. In the hour of trial the one thing they feared was dishonour. If victory was denied to them, did they then fail their fatherland, denying to her the supreme sacrifice?—not one! They laid those bright, those gallant lives at her feet, their fairest gift of a lover's devotion. In one great host did they give themselves to death: but each one, man by man, has won imperishable praise, each has gained a glorious grave—not that sepulchre of earth wherein they lie, but the living tomb of everlasting remembrance wherein their glory is enshrined, remembrance that will live on the lips, that will blossom in the deeds of

their countrymen the world over. For the whole earth is the sepulchre of heroes; monuments may arise and tablets be set up to them in their own land; but on far-off shores there is an abiding memorial that no pen or chisel has traced; it is graven, not on stone or brass, but on the living heart of humanity. Take these men, then, for your ensamples. Like them, remember that prosperity can be only for the free, that freedom is the sure possession of those alone who have courage to defend it. Scorn to be haunted by thoughts of the horrors of war. It is not the wastrel who has nothing to lose, who has no right to look for prosperous days, that is readiest to lay down his life in a great cause; no, it is they who have everything to lose, from whose hands, if they fall, life's fairest prizes slip—these are the stuff of which our myriad heroes are made.

"To such high heroic souls the thought of playing the coward is more abhorrent than any bitterness of death. Death? It is the angel whose silent-sweeping wings, whose unfelt hands, snatch the soldier from earth in the very fulness of strength and hope. Wherefore I will not condole with the parents of our heroic dead; I will rather bid them lift up their hearts. You know that from childhood up you have found no absolute certainty of happiness. Those may be called most fortunate who have gained most true honour, be it such as yours in proud affliction, or such as theirs in glorious death, whose life was so ordered that its last day was its very crown. I know that it is not easy, thus early, to make you feel this, when the good fortune of others, the unbereaved, will so often remind you of your own bright past which sleeps with your sleepers. True it is that sorrow's crown of sorrow is not the missing of anticipated good, but the remembrance of happier things, the sweetness that had twined itself round our hearts. Some of you may win strength and healing from the love of little ones still with you. These will bring balm to your wounds, till memory is no longer pain; and in your rearing of them you will be making your country the richer—a land repeopled, a land strong in the strength of brave defenders. This is a contribution which makes you better citizens, worthier to have a voice in the shaping of your country's destinies. But they whose house is

left unto them desolate, desolate to remain, may still relive in thought the good days gone by; yet a little while, and they will go to those who may not return to them, and their loved ones' glory will make bright the eventide of their days. For the love of honour is for ever young; it is not riches, but the honour and respect of our fellow-men, that are the crown of rejoicing old age."

EXTRACTION OF AN INTRACRANIAL AND AN INTRAPULMONARY PROJECTILE*

At one of the recent meetings of the Société de chirurgie de Paris, Dr. André Lapointe, hospital surgeon, reported an interesting personal observation. He had occasion to extract from a patient a young woman suffering from a revolver wound an intracerebral bullet and an intrapulmonary bullet, near the region of the heart. This was done in one operation, controlled by fluoroscopy. The intracerebral bullet, entering by the left temple, had penetrated to a depth of 7 cm. and was located 3 cm. back of the frontal bone. Under local anesthesia induced by procain and epinephrin, a strip of scalp was excised, the opening was gently enlarged by means of a gouge, and under fluoroscopy, without any special instruments, simply by the use of ordinary blunt forceps, in a few seconds the track of the bullet was located, followed up and the bullet extracted. Irrigation of the encephalic focus by means of warm saline solution was carried out without curettage of the track of the bullet. The original opening was resected and then closed by means of a suture to the centre of the strip of scalp, without drainage. The operation had been so simple and the patient had stood it so well that an immediate fluoroscopic examination of the thorax was decided on, this time with the patient in a recumbent position, the first examination having been made with the patient standing upright. In this connection an interesting discovery was made. In the upright position it had been impossible by the rotation of the screen to differentiate the shadow of the projectile from the heart's shadow, whereas in the ventral decubitus position the two shadows were easily dissociated: the projectile was therefore intrapulmonary. The second procedure was immediately decided on and carried out. An incision was made in the sixth intercostal space; the pleura was opened; but the moment the forceps approached the projectile it disappeared, and a small sanguinolent area was noticeable. After renewed fluoroscopic examination, it was discovered that the bullet had dropped into the pleura, where it was found without difficulty. The postoperative course was excellent and ended in complete recovery.

The point to emphasize in this connection is the great utility of operations controlled by fluoroscopy, for in a case like the present one this is the only means of combining the two procedures in one single operation.

The Journal of the American Med. Assn., [illegible]

The Canadian Medical Quarterly

70 Bond Street. Toronto, Can.

Phone Main [illegible] Cable address Macmaleo

Subscription price per annum in advance, including postage: Canada $3.00, including Newfoundland $3.50, foreign $3.50

REMITTANCES should be made by cheque, draft, registered letter, money or express order. Currency should not be sent unless the letter is registered. Stamps in amounts under one dollar are acceptable. Make all cheques, etc., payable to "The Canadian Medical Quarterly."

CHANGE OF ADDRESS notice should give both old and new address, and state whether change is permanent or temporary.

WHEN COMMUNICATIONS should be made other than on subject matter, such as prompt news items, reprints, change of address, payment of subscription, membership, information wanted, etc., correspondents will confer a favor and will secure prompt attention if they will write on separate sheet for each subject.

ADVERTISEMENTS

Last advertising forms go to press [illegible] days in advance of the date of issue. In sending in copy time must be allowed for setting up advertisements and for sending proofs. Advertising rates on request.

CONTRIBUTIONS

EXCLUSIVE PUBLICATION. Articles are accepted for publication on condition that [illegible] exclusive publication in this country.

COPYRIGHT: Matter appearing in The Canadian Medical Quarterly is covered by copyright, but [illegible] publication will be made to the reproduction in reputable medical journals of anything in the columns of The Quarterly if proper credit be given.

MANUSCRIPTS. Manuscripts should be typewritten, double-spaced, and the original, not the carbon copy, submitted. Carbon copies of single-spaced manuscripts are not satisfactory. Unaccepted manuscripts not returned.

ILLUSTRATIONS: Half-tones and zinc etchings will be furnished by us when satisfactory photographs or drawings are supplied by the author. Negatives are not acceptable. Each illustration, table, etc., should bear the author's name on the back. Photographs should be clear and distinct; drawings should be made in black ink on white paper. Unused photographs and drawings are returned after the article is published.

ANONYMOUS CONTRIBUTIONS, whether for publication, for information, or in the way of criticism, are consigned to the waste-basket.

NEWS: Our readers are requested to send in items of news, also marked copies of newspapers containing matters of interest to physicians. We shall be glad to know the name of the sender in every instance.

We are open to receive from any member of the medical profession signed articles which we shall be glad to publish purely from an unbiased standpoint. The Canadian Medical Quarterly is published in the interests of the profession in Canada, but articles contributed by Physicians in the United States and Overseas are gladly accepted.

Any practitioner who is in possession of copy that would be of interest and benefit to the profession, will confer a favor by corresponding with the editor.

TAKE ADVANTAGE of these COMBINATION OFFERS

Canadian Medical Quarterly (Quarterly)	$3.00	
Edinburgh Medical Journal (Monthly)	6.50	
British Journal of Surgery (Quarterly)	8.50	All for **$23.00**
Archives of Diagnosis (Quarterly)	2.50	
Archives of Radiography (Monthly)	7.50	
	$28.00	

Canadian Medical Quarterly (Quarterly)	$3.00	
Edinburgh Medical Journal (Monthly)	6.50	All for **$15.00**
British Journal of Surgery (Quarterly)	8.50	
	$18.00	

Canadian Medical Quarterly (Quarterly)	$3.00	These Two **$9.50**
British Journal of Surgery (Quarterly)	8.50	
	$11.50	

Canadian Medical Quarterly (Quarterly)	$3.00	These Two **$8.50**
Archives of Radiography (Monthly)	7.50	
	$10.50	

Canadian Medical Quarterly (Quarterly)	$3.00	These Two **$7.50**
Edinburgh Medical Journal (Monthly)	6.50	
	$9.50	

Canadian Medical Quarterly (Quarterly)	$3.00	These Two **$3.50**
Archives of Diagnosis (Quarterly)	2.50	
	$5.50	

The Canadian Medical Quarterly

70 Bond Street - - Toronto, Ont.

New System of Gynaecology

(Eden and Lockyer)

The most Comprehensive Work on this Important Subject

"A series of monographs covering every phase of Gynaecological practice, written by well-known specialists and edited by two men whose names are well and favourably known throughout the Dominion," would accurately describe this work.

To-day most doctors prefer a good monograph, but in dealing with such a vast subject as Gynaecology, it would be impossible for one man to cover the ground in a satisfactory manner. Consequently, on the advice of our Medical Editor, we arranged with Dr. Thomas Watts Eden and Dr. Cuthbert Lockyer to edit this series of monographs and to make the series so comprehensive that it would be equally valuable to the general practitioner and the specialist.

Two of the monographs have been written by Professors at Canadian Universities. P. B. Watson, M.D., Ch.B. (Edin.), F.R.C.S. (Edin.), Toronto; W. W. Chipman, B.A., M.D. (Edin.), F.R.C.S. (Edin.), Montreal.

It would be impossible to give an adequate idea of the importance of this series of monographs in this advertisement, and therefore we have reprinted Professor Chipman's illustrated monograph on "Backward Displacement of the Uterus," and we shall be glad to mail a copy free of charge to any doctor who is interested.

Cash price, $25.00. Subscription price, $30.00.

The Macmillan Company of Canada, Limited

St. Martin's House 70 Bond Street, Toronto

Surgical Therapeutics and Operative Technique

(Doyen)

A Most Striking Addition to Surgical Literature

Many doctors remember Doyen not only because he was "Doyen, the master surgeon," but because he was "Doyen, the egotist." But surely this failing did not detract from the greatness of his work. He believed in himself and because of this belief, together with his undoubted skill, he accomplished wonders in the realm of surgery. If he desired a special instrument for an operation, he designed it, and ofttimes made it himself, as he was a born mechanic in addition to being a great surgeon.

That his work lives after him is not to be wondered at. Many of the instruments in use to-day are still named after Doyen, the inventor, and now what is generally considered to be the greatest three-volume work on Surgical Therapeutics, written and revised by Doyen a short time before his death, is nearly ready. The translation has been prepared by his chief assistant, Dr. Spencer Brown. Need we say more, except to quote the following paragraph taken from a leading medical journal:—"All through the work Doyen is the central figure. His opinions are voiced with such frankness and conviction, his technique alone, described in such detail, that we can form some estimate of the qualities that made him one of the most famous surgeons of our time."

An illustrated circular will be sent to any doctor immediately on application.

Cash price, $22.50 per set. Subscription price, $25.00 per set.

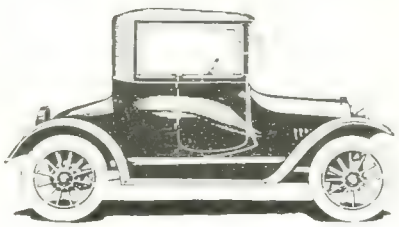
The Macmillan Company of Canada, Limited

St. Martin's House 70 Bond Street, Toronto

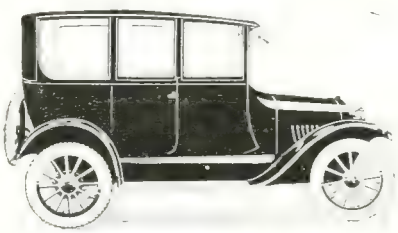
Motor Cars **CHEVROLET** Made in Canada

ECONOMICAL TRANSPORTATION

Model Four-Ninety Touring Car



Model Four Ninety Coupe



Model Four-Ninety Sedan

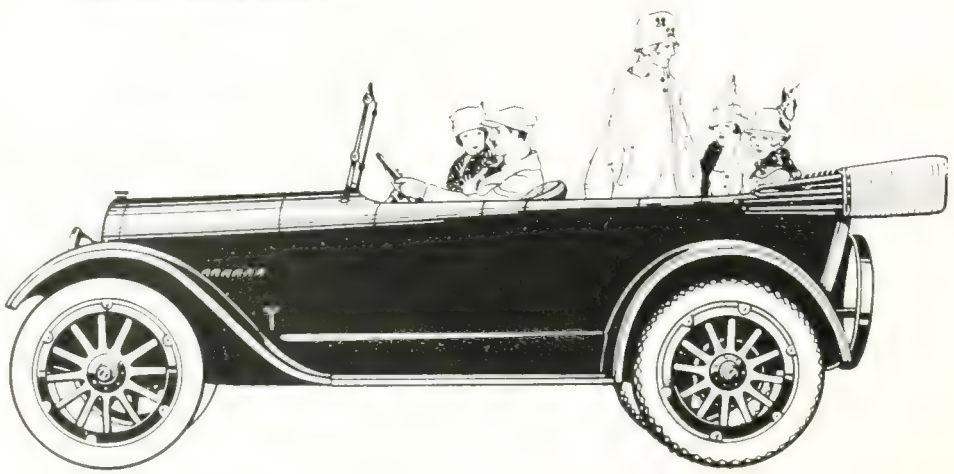
From the standpoint of the cost per mile of motoring, the Chevrolet is most economical.

The initial cost and up-keep make the Chevrolet an investment, not an expense.

The time saved enables the busy doctor to crowd more into the busy day.

Send for Catalogue to

The Chevrolet Motor Co.
of Canada, Limited
OSHAWA - ONT.



NEW MODEL F. B. BABY GRAND TOURING CAR

The NEW ROYAL MASTER-MODEL 10

"The Machine with a Personality"
FEATURE No. 2

No Matter What Your Personality May Be— The ROYAL MASTER-MODEL 10 will fit it:

"Just Turn the Knob"

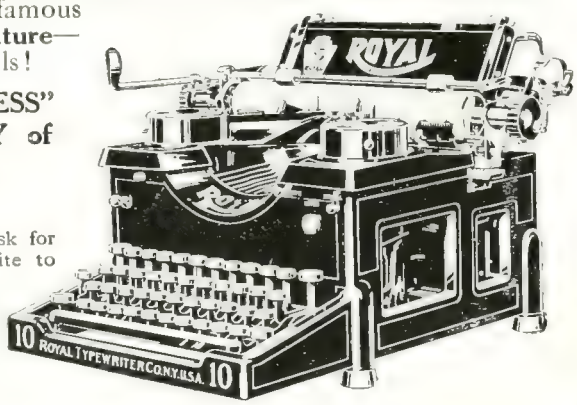
EVERY keen-witted stenographer, every office manager, every expert operator on the firing-line of "BIG BUSINESS" will grasp at once the enormous work-saving value of the ***New Royal Model 10.***

Because it is "the machine with a personality"—*your* personality! Think of a master machine with an adjustable touch—a typewriter you can "tune up" to fit your own *personal* touch, simply by "turning the knob" until it strikes the keynote of YOURSELF.

Think of getting through your week's work with the *minimum* of effort and banishing the dull grind of "typewriter nerves."

That's only *one* reason why the No. 10 Royal is the *master machine.* There are many other big, vital new features. Combined with the personality of its *regulated* touch, you get a typewriter with 100% speed—100% accuracy—100% visibility—100% durability—making 100% EFFICIENCY. A machine with 1,000 working-parts "*minus*"—a typewriter of *long-term service,* that need not be "traded out" and won't "die young."

The **No. 10 Royal** introduces many exclusive Royal features not found on any other typewriter in the world. It carries all standard improvements: **Tabulator, Back Space Key, Bichrome Ribbon and Automatic Reverse,** and has the famous **Royal Triple Service Feature**—it writes, types cards and bills!



BUILT for "BIG BUSINESS" and its GREAT ARMY of EXPERT OPERATORS.

Get the Facts!

Send for the "Royal man" and ask for a DEMONSTRATION. Or write to us direct for our new brochure, "Better Service," and a beautiful Color Photograph of the new Master-Model 10, showing *all* of its many remarkable new features. This advertisement describes only one. "Write now—right *now*!"

Write or phone for catalog

FIELD, LOVE & HOUSE

Phone Main 2457 **41 Richmond Street West, Toronto**

"It Simplifies My Work"

Those bothersome details never worry me," said an eminent physician, when asked the secret of his success. "And I have found that there are three things necessary for the success of any professional man. (1) Constant study to keep abreast of the times. (2) Bright, fresh, up-to-date labor-saving equipment for the office and laboratory. (3) An efficient system of accounts."

In probably no other walk of life is it so absolutely necessary to eliminate detail work as much as possible, as in that of a professional man. With an

Office Specialty "Efficiency Desk"

"I have been able to cut detail work to a minimum. My records of patients, of treatments, of the progress made, essential memoranda of research work, and results of laboratory tests, on the action of certain medicinal formulas for some particular case, are all filed, so they are available instantly when I want them. My business records are also kept in order for a proper 'follow up' system for collecting my accounts."

This is an ideal desk for any professional man combining as it does the advantages of an up-to-date, flat top desk and filing features, only procurable in a filing cabinet and at the price of a desk alone. The lower drawers can be used for filing correspondence and like matter, the upper drawers as Card Record Index cabinet, where appointments, follow-up accounts, etc., can be arranged for.

It will be to your advantage, if you are not already enjoying the satisfaction this desk gives, to investigate the possibilities it would have in your consulting room or office. Detail work is practically eliminated and gives the freedom necessary for the concentration of your mind in the proper channels. Consult the nearest branch office, or write direct to the Home Office, to-day, for further information.

The Office Specialty Mfg. Co., Limited

Filing Equipment Stocks at

Toronto Montreal Ottawa Hamilton
Hamilton Winnipeg Calgary Regina
Edmonton Vancouver

Home Office: Newmarket, Canada

OFFICE SPECIALTY
FILING SYSTEMS

We buy and sell desirable Practices for Doctors

Many young physicians are anxious to obtain good practices that may be taken over at a reasonable figure. A number of old practitioners may want to sell their practices and devote their time to consultation only. If so, we can put you in touch with the proper parties, or arrange details for you.

Our business is dealing in medical practices. We are agents —brokers if you like—and we can put those who want to sell in touch with those who want to buy.

Why not correspond with us and see what opportunities we have on our list?

At the present time we have a number of desirable locations that are worth while looking into.

Our terms are very moderate, quite low in fact, and without any trouble or waiting by either party we can obtain for you just what you want.

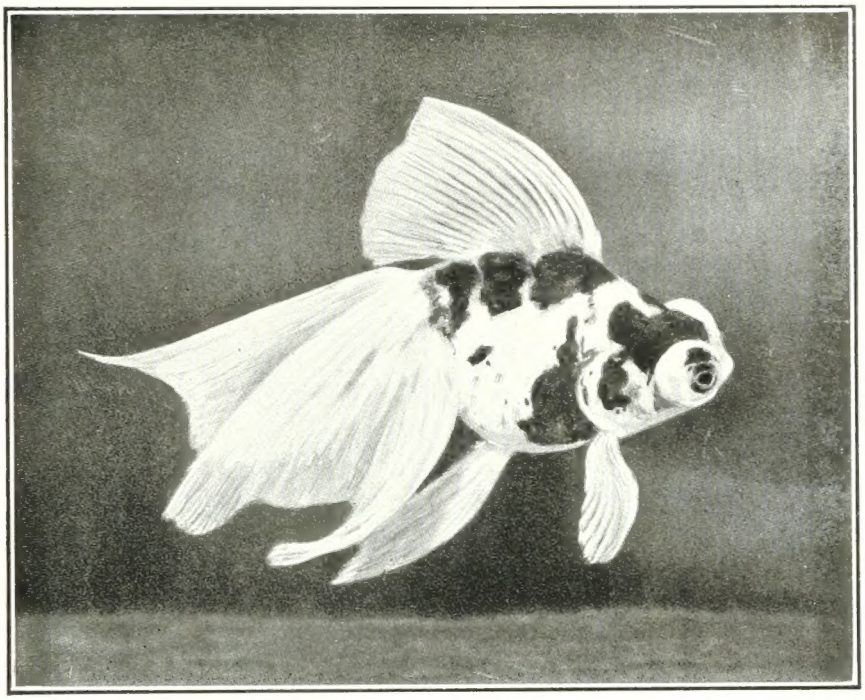
If you desire to enlist our services we will serve you in confidence— that is the keynote of our business.

We have many satisfied clients, we hope to obtain many more, and a letter to us will bring by return mail any further information.

WRITE TO-DAY

The Dominion Practitioners' Exchange

401 Lumsden Building **Toronto, Canada**



One of the Most Beautiful Creations of Nature

What wonderful things the medical profession has accomplished in the healing and reconstruction of the human frame partially destroyed and deformed in the Great War. What wonderful progress your profession has made in the science of healing through surgery and medicine! Generations yet unborn will reap untold benefit from the discoveries that your profession has made within the last few years.

We, as hotel men, are continuously on the lookout for improvement in the operation of our business, to help along the comfort and convenience of the individual who is compelled to stay at one of these hostelries while sojourning in a big city.

In a commercial institution such as an hotel, it pays to study the wants of your patrons in small things, as it is really after all the small things that count in service.

We endeavor at all times to be alert and watchful for the comfort of ladies and children travelling without male escort. We realize that the child is the future adult who will give us patronage, and knowing that the child—owing to the fact that we have children of our own—requests many things that the parent hesitates to supply, we want all our patrons to feel while sojourning at the Walker House or the Hotel Carls-Rite, that no request of the child in the matter of food or creature comforts shall be denied to the patrons at any hour of the day or night.

We endeavor in our operation of running an hotel to provide an atmosphere that will be as near to the ideal atmosphere of a home as it is possible to create in a commercial institution.

We operate both these hotels on the American Plan, with European Plan rates if desired.

The Walker House Cafeteria is open day and night for the convenience of those arriving on late trains in our city, where "Pure Food at Reasonable Prices," is our slogan.

When visiting Toronto do not fail to visit our wonderful Gold Fish Aquarium, where we have the greatest variety of Gold Fish ever brought into Canada. Our tanks are situated in our barber shop, easily accessible from the hotel lobby or separate entrance on York Street. This department is surely a delight and an education for the children.

The Walker House

"The House of Plenty"

The Hotel Carls-Rite

"The House of Comfort"

TORONTO'S TWO FAMOUS HOTELS

GEO. WRIGHT - Proprietors - E. M. CARROLL

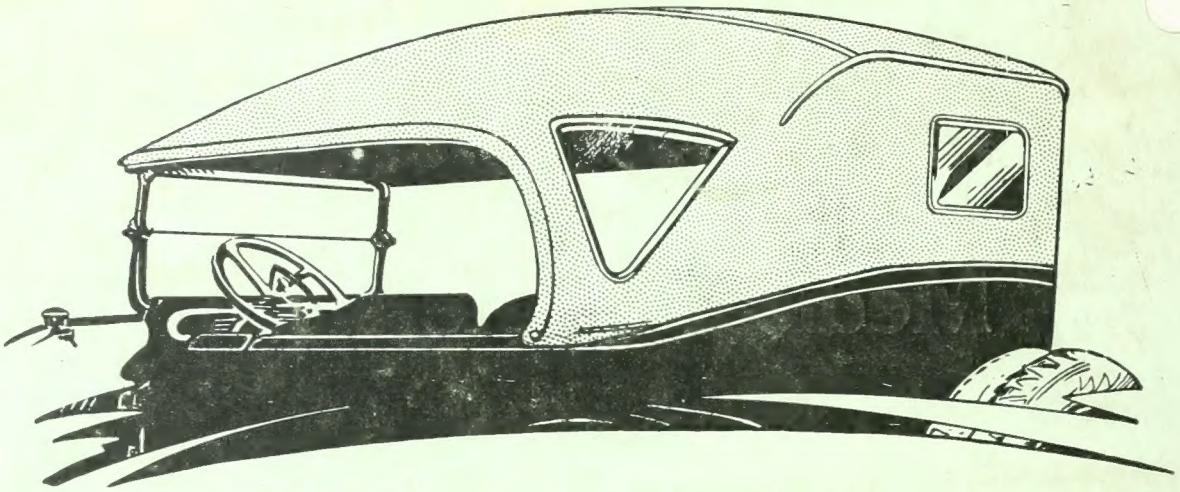
To the Medical Profession:

The Standard Oil Co. (New Jersey) is in a position to select raw materials of the best quality obtainable in any parts of the world; and with their excellent manufacturing facilities and expert chemists they offer in NUJOL a product for use in the treatment of constipation of the finest quality manufactured in any country up to date.

In witness of this fact we will be pleased to send a sample of NUJOL to any physician who will request it of Charles Gyde & Son, Box 875, Montreal, Quebec, Canadian Selling Agents.

F. H. Bedford Jr.
MGR NUJOL DEPARTMENT

Manufactured by
STANDARD OIL CO. (NEW JERSEY)



The worse the weather is—the more need for

DU PONT FABRIKOID

RAYNTITE

No one has greater use for a car than a physician.
No one has greater need for a snug, waterproof, weatherproof top to his car.

Rayntite is the ideal material for car tops.
Rayntite is the guaranteed top material.

It is light in weight, and flexible—makes the "One-man top" a possibility. It is non-absorbent of wet, or grease, and will not crack or split under constant folding.

If you are buying a new car—see that the top is made of guaranteed Rayntite.

If you are having your present car re-topped, specify Rayntite.

We will gladly send you on request our Rayntite Booklet—"The Top Question," and samples of Rayntite. This little booklet will be of inestimable service to you.

DU PONT FABRIKOID COMPANY

FACTORY and SALES OFFICE NEW TORONTO, ONT.